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July 1961

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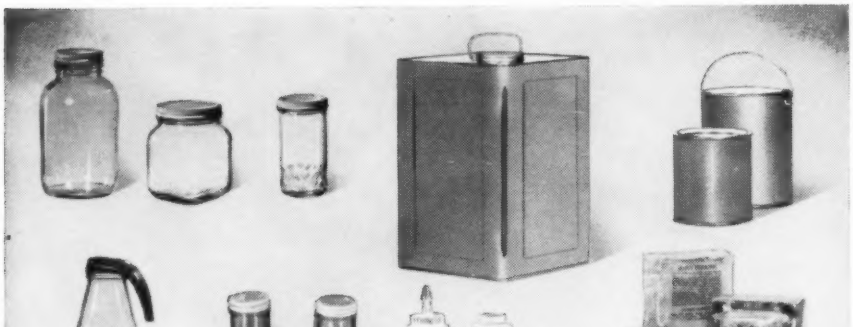

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July, 1961 CONTENTS Vol. 89, No. 7

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COVER PICTURE – John Dulaney, a retired contractor of Medina, Ohio, lights his bee smoker as he begins to check his hive which is located on the grounds of his home. John and his wife, Mabel, take great pride in their lovely home and their prize winning flower gardens that surround it. John calls himself a "suburbanite beekeeper" and avers that his garden would not be so picturesque without the help of his bees in pollinating the flowers.

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Gleanings' Mail Box

JACK HAPP

Dear Editor:

There has been considerable success lately with the holding and shipping of virgin queens. They are doing things with these virgins that old time beekeepers just won't believe. This has come up time after time at our association meetings.

Usually these things go on for three to five years before your paper takes hold and gives out with these new techniques. So why don't you grab the bull by the horns and give us some articles? Either way you're going to be criticised. There are always a few "againsters", on every new procedure. This thing could revolutionize the queen bee industry, or it could die a natural death, for lack of progressive beekeepers to work out the details of this new routine.

Ed. Hall, N. 6810 Regal, Spokane, Washington has installed these virgins with great success. Herman Larson, Route 1, Junction City, Oregon, has raised and held virgins for 30 days, and they made wonderful queens. Canadians have raised and shipped virgins, and could give us lots of information if they would.

Queens could be raised and shipped as virgins, for half of their present cost, if this information could be gathered and gleaned through your magazine.

No queen breeder has controlled mating anyway, so why not have the queens mated in the buyer's apiary, instead of the queen breeder's nucs? It could save all the bees and the labor of making up these nucs, catching and caging queens.

Virgins could be raised so as to emerge right into the shipping cages. With the high cost of labor, this is bound to take hold and change a lot of progressive beekeepers' minds.

So let's bring that bee magazine up to date and give us this information now, while it's hot, not after we have worked out all the details ourselves.

With our best wishes.—A.G., Idaho.

Dear Editor:

I read of the increase in honey support prices with considerable dismay. There is no doubt but that the new support prices will draw millions of pounds of honey into the hands of the Government. I think most of us will agree that the left wingers in Washington are trying their best to seize control of all agriculture.

If you let the Government get enough honey they can hold it over the market as a threat to force beekeepers into their regulated economy. They can come out and tell you how many bees to keep, how much honey to sell and for how much. You might note the present position of the feed grain producer.

I wote a letter of protest to the Secretary of Agriculture. He replied that this increase was granted at the request of the American Beekeeping Federation. I wonder why the Federation took this stand.

It seems to me that we have one basic issue in this country. Are we going to let the Government control everything and take care of us from the cradle to the grave? This is Socialism. Or are we going to continue to run our own businesses as we have in the past? This is private enterprise. Personally, I like to run my own business.

I heard one feed grain producer say that for all this support price money he is getting he can afford to surrender his freedom. Well, if all our people are like that our country doesn't have much future as the land of the free.

—P. E. B., Nebr.

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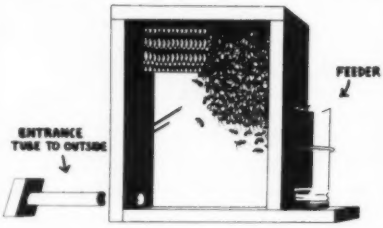

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Monthly HONEY Report

WALTER BARTH
Field Editor
San Antonio, Texas

LETTERS FROM different parts of our industry show concern about our developing national honey promotional program. When the financial picture brightens the promotional enthusiasm darkens. To maintain interest in needed honey promotion a long term program has been set up by the Federation Marketing Committee under the direction of C. D. Floyd, Chairman.

The Committee understands that any successful program must have grassroots support to be successful. Keeping this in mind the committee's promotional plans for honey are guided by these ideas.

1. Development of strong local associations for local promotion of honey.
2. Development of leaders in various areas to guide a program.
3. Keep promotion of honey foremost.
4. Work with youngsters to develop new users of honey and new beekeepers to produce it.

National Reports

The reports coming in are quite varied so that they will be directly passed on here. **Florida reports.** The gallberry nectar flow is just about over in the north central part of Florida. Yields have been good and the quality of the honey is excellent. Palmetto is just starting to bloom. Recent rains ended what might have been a serious drought. Most colonies are in excellent condition.

New York. Most of the time it is cool in central New York State. Weak colonies just can't hold out long under such conditions. Strong colonies are gaining steadily and unattended colonies are swarming.

Michigan. Bees in good shape. Plenty of moisture. Honey plants in good shape but not too plentiful. Detroit honey market being plagued by a national brand offering a four pound jar of honey at 79 cents.

South Dakota. Weather has been cool and dry for most of South Dakota for the past month. Bees overwintered well and have adequate stores. If prolonged cool weather continues, feeding of overwintered colonies may be necessary. Moisture reserves are low and honey plants are late.

Texas. Scattered heavy showers helped to bring on a good vetch flow in the northeastern part of the state but high winds soon dried out the moisture and hampered the bees working the blossoms. There is great need for more rain especially in the central area. Producers have very little honey left on hand.

Arkansas. Adequate moisture conditions are reported in the northeastern part of the state but honey plants were a little below average due to continued cool weather. Retailed honey sales proved fair to good in the Paragould area.

Nebraska. Cool, windy weather curtailed bee activity in the eastern part of the state during late spring months. The unfavorable weather hindered bees in their attempt to fully work dandelion and wild plum. There is adequate soil moisture, but clover needs warmer weather. No honey remained in the producers' hands.

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D. R. ROBERTSON
Winnipeg, Manitoba, Canada

THERE ARE approximately a thousand beekeepers in Manitoba operating about 41,700 colonies. Ten percent of these beekeepers operate 80 percent of the colonies. The 10 year average honey production for the Province is five million pounds with an average yield of 120 pounds per colony. In 1960 the Manitoba production was estimated at 6.4 million pounds with an average production per hive of 153 pounds.

The Province of Manitoba, situated immediately north of the States of Minnesota and North Dakota, covers an area of 251,000 square miles, extends 761 miles north and south and is 278 miles in width at its southern

end. It is bounded easterly by the Province of Ontario, westerly by the Province of Saskatchewan and in the north borders in part on Hudson Bay. Although Manitoba's total area is nearly equal to that of Texas, its Agricultural area is restricted to the southern part, an area equal in size to that of the State of Georgia. Manitoba beekeeping is restricted almost in its entirety to the Agricultural area. Sixty percent of Manitoba is within the Pre-Cambrian shield which is very rugged country with large outcrops of rock, extensive swamps and numerous lakes. A sportsman's paradise is Manitoba and for beekeepers a good honey producing Province.

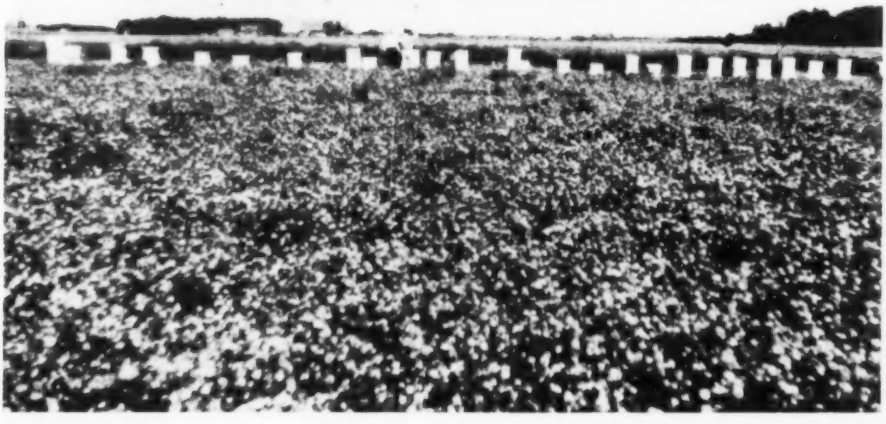
95% of Colonies from Packages

About 95 percent of the colonies kept in Manitoba are established each year with package bees. Although wintering is feasible it has not become common practice. Package colonies do well and until such time as the economic picture changes materially in favor of wintering, the use of package bees will no doubt be common practice here.

Most packages are imported into the Province in late April and early May. This gives sufficient time for colonies to build up for the main honey flow which normally commences the first week of July. The main honey flow lasts about three weeks and only occasionally is very extensive for much of August. Favorable weather has given good honey flows in August from alfalfa and also from buckwheat in years when it's grown. The major honey producing plants are sweet clover, alfalfa and red clover. Sweet clover is grown extensively for soil fertility and as a seed crop, but its acreage has fluctuated greatly in recent years because of the sweet clover weevil. Alfalfa which is being grown more extensively each year is used chiefly as a pasture and forage crop. Red clover is grown in some districts as a seed crop. In recent years rape has been grown extensively and is proving to be a major honey producing plant. Buckwheat has been grown extensively at times and was a major source of honey for a few years in the mid fifties. Sunflower is of limited acreage and can be a good yielder of honey. Wild plants such as fireweed and sowthistle serve as sources of honey for some beekeepers.

One of the unique features of beekeeping in Manitoba, and this is true in each western Canadian Province, is the short beekeeping season. The whole

Honeybee colonies set out adjoining a field of red clover for pollination purposes.



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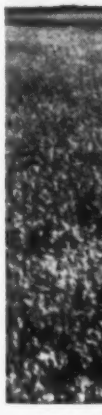

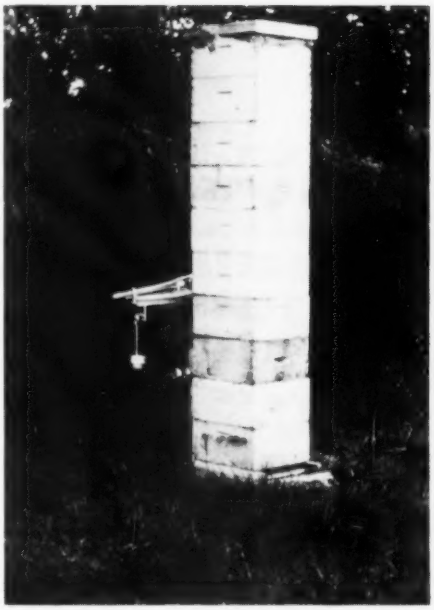

A good hive kept on scales. This one had a net yield of 450 pounds.

season can be put into the four months of May, June, July and August, and some commercial beekeepers do it, as common practice. The package bees are installed the first week of May, extracting starts the last week of July and the colonies are gassed the last week of August.

Another unique aspect of beekeeping in Manitoba is the system of honey marketing. At least 80 percent of the honey to be marketed through trade channels is handled by the beekeeper owned Honey Co-operative packing plant. This organization sells approximately one million pounds in Manitoba and exports the remainder, chiefly to the Provinces of Ontario and Quebec. The Manitoba population is less than one million and, therefore, all the honey produced in the Province cannot be consumed here. Three fourths of the Manitoba population live in the Greater Winnipeg area which makes for one big central market in the Province. The sale of beekeeper packed honey is limited and the beekeepers have found it more advantageous, therefore, to sell their honey through one central agency.

Beekeeping in Manitoba is confined to honey production. Although honeybees are recognized as doing a beneficial job in the production of seed crops, beekeepers as yet receive no remuneration for the services of their bees in pollination. There is sufficient

A field of sweet clover. A common sight on the prairies.

Educational display of Honey Colors as set out in Provincial Honey Grading Regulations. At least 90% of production is white honey.

competition in locating apiaries for honey production that a seed producer has only to provide an apiary site to receive bees for pollination purposes.

The beekeeping problems here are those common to any other place as well as the ones associated with the handling of package bees, such as queen supersedure. Swarming is not an annual problem but can be bad in some years. Weather is probably the biggest influencing factor in beekeeping here. With such a short season, inclement weather can materially affect a season's operations. Fortunately, the long summer days have the advantage that even under adverse weather periods two or

(Continued on page 447)

Most Manitoba beekeepers market through their own honey processing plant. Brand name of Clover Crest.

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What About Phenol?

If you use an acid board to drive bees out of supers then you will be interested in this.

CHARLES MRAZ
Middlebury, Vt.

IT IS NOW some 30 years since my first article appeared in Gleanings on the use of phenol to drive bees out of supers. Since that time, its use has spread over much of the commercial beekeeping areas of the world because of the saving of time and labor in harvesting the honey crop. Many other methods have been tried and used, such as escapes, smoke boxes, sound frequencies, etc. While many methods can be used, so far, none has been as efficient as the phenol covers.

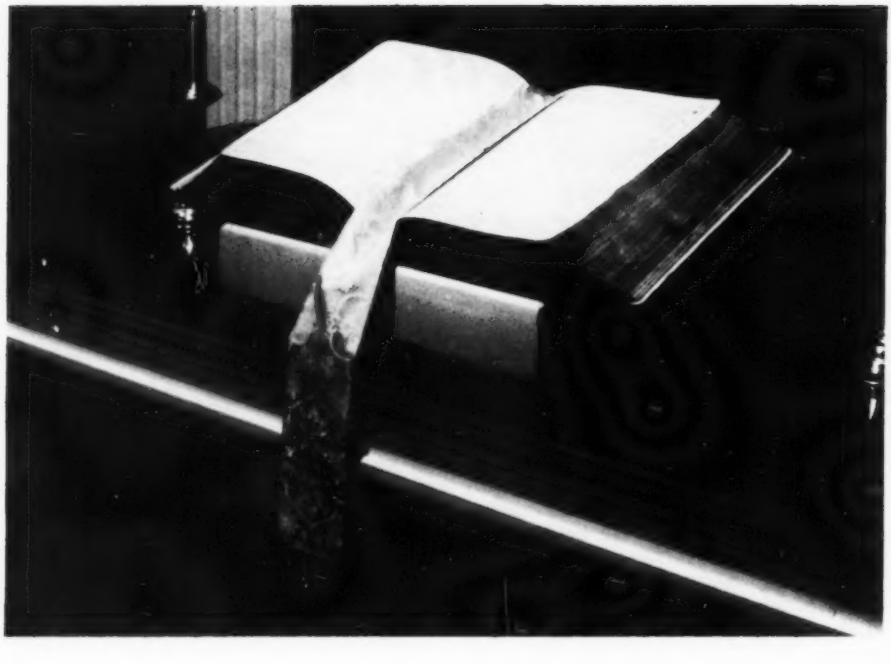
It has been suggested that other materials than phenol be used to drive bees out of supers. Thirty years ago when I first experimented with the phenol covers, I tried many different kinds of materials such as formic acid, acetic acid, cresol, smoke, ammonia, etc. Added to this list, I have also tried CO2 and the commercial insect repellent "6-12". Pine oil is suggested as a repellent, and while I have never used it, my opinion is that it might be similar to cresol which also works, but it imparts a taste to the honey. Pine oil may have the same fault. Ammonia, which has a violent effect on our sense of smell, strangely enough seems to have no effect on the bees and it does not repel them. "6-12" has a powerful repelling action against many insects, but on bees, it has no effect at all. CO2 in a confined container, will put bees to sleep very quickly, but used on a super, it also does not repel the bees. The search for a better repellent, no doubt, will continue and should continue.

The cyclic hydrocarbon phenol is a chemical radical found in many natural products. Phenol itself is strongly corrosive on tissue and bacteria and has been used for many years to prevent bacterial growth in many medical preparations such as used for injections. For example, normal saline solution used for injection usually contains 0.5% phenol as a preventative to bacterial contamination. Within the last year or two, according to newspaper reports, the FDA conducted experiments on toxicity of lipstick dyes. In this test, one group of animals was fed 1.0% lipstick dye in their foods and another 1.0% phenol. Those with the lipstick dye, died in about six weeks. Those with phenol in their food lived two years without any change in growth or other abnormalities. 2.0% phenol in the food showed some growth retardation.

Yet, in spite of the apparent fact that a trace of phenol is harmless, we should endeavor to keep the amount at zero, until such time when a better system will be found to take off supers of honey, and I have been concerned with this problem for some time.

The usual procedure to apply phenol to the covers, is to dilute phenol with water and sprinkle a small amount of the solution on the cloth. The water soon evaporates and the phenol then starts to form long, needle like crystals on the cloth. It is possible that at this stage some of the crystals break or fall off the cloth and fall on the supers. This infinite amount is all that is needed to show a five parts per million contamination.

(Continued on page 442)



The Holy Bible:

.... *a real honey testimonial*

W. W. MAXWELL, B.S., M.D., D.A.B.,[a] F.A.C.S.,[b] F.I.C.S.[c]
Deacon, Trinity Baptist Church, San Antonio, Texas

"IN THE beginning, God created the heavens and the earth" Genesis 1:1 (Revised Standard Version), and **"all things were made and came into existence through Him, and without Him was not even one thing made that has come into being"** John 1:3 (Amplified Version). Surely this creation included the honeybee; for there are 68 references in the Bible to bees, honey and honeycomb. It is interesting that the Bible contains 66 Books, two less than these references.

Ever since my childhood years, spent on the farm where we had many hives of bees, I have been deeply interested in bees, honey and honeycomb. My mother, a Baptist minister's sister, used to read the Bible to her three sons; and I can clearly recall the story of Sampson's killing of the young lion, and later his finding of bees and honey in its carcass. Equally impressive were the

FOOTNOTES: (a) Diplomate American Board of Obstetrics and Gynecology.
(b) Fellow American College of Surgeons.
(c) Fellow International College Surgeons.

many references in the Bible to **"a land flowing with milk and honey"** Exodus 3:8(RSV). Recently, I made it my business to look up (in the Bible Concordance) [1] all the references pertaining to bees, honey and honeycomb. Being a reader of the Bible and a hobby beekeeper, as well as a busy obstetrician, I resolved to put in writing an article that would include all references in the Bible to bees, honey and honeycomb. I am sure that there are hundreds of beekeepers in the world who feel that God really created the honeybee for the specific purpose that man, whom **"God created in His own image"** Genesis 1:27 (RSV) might be supplied with honey, the one universal natural food for all ages.

The phrase **"A land flowing with milk and honey"** occurs 20 times in seven books of the Old Testament, beginning with Exodus 3:8 (RSV). It certainly was used enough to emphasize the fact that man can live satisfactorily on a diet of milk and honey, with very little of other foods. As a matter of record, Doctor Mykola H. Haydak, now Professor of Entomology, University of Minneota, lived three months on a diet of milk and honey in 1934. [2] He says that he neither gained nor lost weight and was able to do all his daily duties successfully. He did have to add orange juice during the dieting because of the low vitamin C content of milk and honey.

We read in Judges 14:8,9 (RSV) that Sampson went back to look at the carcass of the lion, which he had previously killed, and found a swarm of bees in its carcass. Since they had produced honey in it, he scraped the honey out into his hands and ate it as he went along, giving some of it to his father and mother. They ate it, but he did not tell them he had taken the honey from the carcass of the lion. [3]

It was recognized that milk and honey were essential for babies' formulae, even in Biblical days. Isaiah prophesied: **"Therefore the Lord himself will give you a sign. Behold, a young woman shall conceive and bear a son and shall call his name Immanuel. He shall eat curds and honey when he knows how to refuse the bad and choose the good"** Isaiah 7:14,15 (RSV). Many pediatricians today prescribe honey for their babies instead of sugar. Honey is readily absorbed by the stomach because it has been predigested by the bees. Also, all milk must be changed into curds as soon as it reaches the stomach as a necessary part of digestion, whether in babies or adults.

In Proverbs, the wise thoughts inspired by the Lord, as expressed by David give us much information about honey, such as: **"My son, eat honey, for it is good, and the drippings of the honeycomb are sweet to your taste"** Proverbs 24:13(RSV); and again as a warning to us all, **"If you have found honey, eat only enough for you, lest you be sated with it and vomit it"** Proverbs 25:16(RSV). It is written wisely; **"It is not good to eat much honey, so be sparing of complimentary words"** Proverbs 25:27(RSV). However, ancient people believed that honey and sweet words were good for the health and soul of man. As the writer states in Proverbs 16:24(RSV), **"Pleasant words are like honeycomb sweetness to the soul and health to the body."** Many may fear the judgments of God, but twice in the Psalms we are told that the judgments of God are sweeter than honey, Psalms 19:10 (King James Version) and Psalms 119:103(KJV). [4]

The Bible shows in many ways how important articles of food honey and honeycomb were for the people of that day; often used, no doubt, as the greater portion of their daily diet. This was so in the case of John the Baptist, for the Bible says that **"his food was locusts and wild honey"** Matthew 3:4(RSV). Honey in the honeycomb has been the natural product of the honeybees since the beginning of the Creation. It is Nature's one universal predigested food which can be readily absorbed by the most delicate stomach of all people of all ages, from infancy to senility, producing growth, energy and normal good health. Therefore, it seems proper, according to Isaiah's prophecy, that Jesus (Immanuel) should be given milk (curds) and honey as a baby that He might grow into manhood normally. Also, it is very interesting to note that the **First Meal** that Jesus had after His Resurrection is thus described by Luke; **"And while they yet believed not for joy, and wondered, He said unto them 'Have ye here any meat?' And they gave Him a piece of broiled fish and of**

an honeycomb. He took it and did eat before them" Luke 24:41(KJV).

In conclusion, I hope that these correlations between the Scriptures and Nature's most useful food, honey, will give every beekeeper throughout the world a deep spiritual satisfaction, knowing that he is carrying out the Will of the Creator as he uses his God-given talents in producing more honey for more people.

What food used today by millions of people is mentioned in the Bible as many times as are honey and milk? It is the wish and purpose of this compilation that all beekeepers, and others interested, will look up and read the references as they appear in the bibliography.

BIBLE REFERENCES:*

Genesis	43:11	2 Chronicles	31:5
Exodus	3:8,17	Job	20:17
"	13:5	Psalms	19:10
"	16:31	"	81:16
"	33:3	"	118:12
Leviticus	2:11	"	119:103
"	20:24	Proverbs	5:3
Numbers	13:27	"	16:24
"	14:8	"	24:13
"	16:13,14	"	25:16,27
Deuteronomy	1:44	"	27:7
"	6:3	Songs of Solomon	4:11
"	8:8	" " "	5:1
"	11:9	Isaiah	7:15,18,22
"	26:9,15	Jeremiah	11:5
"	27:3	"	32:22
"	31:20	"	41:8
"	32:13	Ezekiel	3:3
Joshua	5:6	"	16:13,19
Judges	14:8,9,18	"	20:6
1 Samuel	14:25,26,27,29	"	27:17
"	14:43	Matthew	3:4
2 Samuel	17:29	Mark	1:6
1 Kings	14:3	Luke	24:42
2 Kings	18:32	Revelations	10:9,10

* In several of the above references both bees and honey, or honey and honeycomb are mentioned in the same verse.

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WANTED — Pictures and Short Articles — Gleanings can use short, interesting, articles running between 500 and 1000 words. Good, clear cut, black and white pictures to accompany articles will add reader interest. So get out that camera, sharpen your pencil and let yourself go and share with others your beekeeping experiencs and opinions.

The Birds Moved Out

W. F. ROBERTSON
Jacksonville, Fla.

I WAS CALLED on November 1, 1960 to remove a swarm of bees from a bird house. Upon arriving I found they had been there for several months and the lady did not want to see them die over the winter months. The bees had entered her bird house and had completely filled it with honey and then moved outside, as the pictures will show. As usual I had a few spectators who wanted to see how it is done so decided to take some pictures.

I first loosened the bird house from the metal it was attached to by screws, then took pictures from each side and the front, then waited for darkness and lifted the bird house from the metal holder on the tree. Not one single bee stirred. I placed the bird house, complete with bees, in a cardboard box and carried it home. I then placed the bird house in an empty hive body on top of a super of honey and brood chamber of combs. The bees were turned upside down on the combs, roof of bird house down.

I checked the bees February 27, 1961, the queen had moved down to the brood chamber and had plenty of brood and bees, also honey. This will be an excellent hive this spring, my theory being a queen will not lay eggs in combs upside down but believe it or not—it worked.

External Mites On Honeybees In U. S.

From the Miscellaneous Contribution No. 1017 of the Massachusetts Experiment Station and No. 1338 of the Department of Entomology and Plant Pathology.

F. R. SHAW, W. J. FISCHANG, E. R. BALBONI and J. W. EVERSOLE
Department of Entomology and Plant Pathology
University of Massachusetts

DURING THE past year there has been considerable interest in the occurence of mites of the genus **Acarapis** on honeybees in the United States.

Attention was focused on the problem by the report of the Commonwealth Institute of Entomology that three mites found in a shipment of bees from California to Australia fell in the biometric overlap of subspecies **woodi** and **externus** of **Acarapis woodi.**

Eckert and other California workers have devoted much time and energy in attempts to obtain further information on the occurrence of mites on bees in the United States. At the suggestion of Dr. Eckert, the senior author in late 1959 began an examination of bees in New England for the presence of mites. The investigations were continued during the summer of 1960, and with the cooperation of beekeepers or beekeeping specialists, the presence of external **Acarapis** mites of honeybees has now been confirmed in all of the New England states. In addition, the authors recovered mites from shipments of package bees from Georgia, Louisiana and Mississippi.

Identity of Mites

The identification of the external mites of bees is somewhat difficult for several reasons. Some specialists have maintained that there are only two species of mites infesting bees. These have been referred to as **Acarapis woodi woodi,** the tracheal mite, and **Acarapis woodi externus**, the external mites of bees.

Other workers have described several "species" of mites, based largely on the location of the mite infestation on the bee. Thus Morison in 1931 reported **Acarapis dorsalis** from the scuto-scutellar groove. Haman, 1932, reported **Acarapis externus** as occurring in the lower portion of the "neck" of the bee. In 1939, Schneider reported **Acarapis vagans** as living on the veins of the hind wing of the bee and on the front surface of the second abdominal tergite (considering the propodeum as abdominal segment one). He also indicated that **Acarapis woodi**, the tracheal mite, occurs externally in the vicinity of the base of the front wings. Morgenthaller, 1951, has discussed more fully some of the problems involving the taxonomy of the acarine mites.

We have now found mites in all of the locations indicated except for the area of the base of the front wings, within the tracheae, and on the anterior portion of the 2nd abdominal tergite. Unfortunately, in many instances the forms obtained were immature, and to our knowledge no one has indicated any morphological means of separating the immature stages.

Extent of Infestation

During the spring of 1960, an examination of 100 individual bees per colony from 32 colonies revealed an infestation of 90.6 per cent. The data obtained are summarized in Table I.

Table I. Incidence of External Acarapis in Massachusetts

No. of colonies in each infestation group	Per cent infestation	Avg. no. mites of all stages found per 100 bees	Total no. of mites all stages
3	0	-	-
9	1 - 5	5.7	51
7	6 - 10	17.7	124
5	11 - 15	25.2	126
4	16 - 20	47	188
2	21 - 25	42	84
1	26 - 30	49	49
1	46 - 50	79	79
Total 32			701

During these investigations it was possible to determine the extent of infestation of the area near the wing bases or on the hind wing. A careful examination of 1800 bees showed that 50.6 per cent of the infestations involved the wing bases, the hairs near the wing bases, or the wing surfaces.

In order to determine the infestations of drones and workers from the same colonies, 100 bees from each caste were selected from each colony and examined. The results appear in Table II.

Table II. External **Acarapis** Infestations on Worker and Drone Bees.

Colony	Per cent infestation: Workers	Drones
3	49	21
4	6	3
19	22	9

In order to obtain information concerning infestations of young versus old bees, 100 old and 100 young bees from the same colony were examined. These data are represented in Table III.

Table III. Incidence of External **Acarapis** on Young and Old Bees

	Young Bees	Old Bees
Per cent infestation	27	17
Total no. of mites on infested bees	32	20

Seasonal Abundance

Preliminary data indicate that the incidence of mites drops in the fall, increases in the spring, and is highest during late spring and summer. Brugger, 1936, has considered the seasonal history of external bee mites in Europe in some detail. He indicated a seasonal fluctuation in mites with the lowest level occurring during the winter months.

Conclusions

1. External **Acarapis** mites attacking bees have been found from each of the New England states.
2. The incidence of these mites decreases in the fall, increases in the spring, and is highest in late spring and summer.
3. External **Acarapis** have been found in the scuto-scutellar groove, at the base of the hind wings, on the hind wings, and in the ventral region of the "neck" of the bee.
4. Preliminary data indicate that the incidence of mites is higher on young worker bees than on the older ones.
5. In 85 percent of the colonies examined, the infestation was below 20 percent, i.e., mites were found on less than 20 of the 100 bees examined.
6. Thus far, there appears to be no relationship between mite infesta-

(Continued on page 447)

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Incubator Queens

HOWARD HATCH
Poteet, Texas

Queen-right cell building colonies, incubators, and the introduction of virgin queens are not considered feasible but they work for this man.

THE IDEA that queenless bees are needed to accept grafted cells is obsolete with us.*

From our past experiences we have found that we can raise queens satisfactorily by the use of queen-right cell building colonies. We do not have any queenless cell building colonies in our yards. If something happens to a queen, we replace it as soon as possible.

We may not get as many cells accepted as one would in a queenless cell builder; however, with a queen laying within the cell building colony, we do not have to worry about adding bees periodically, as is necessary when operating queenless cell builders.

We place approximately 40 grafted cells into each cell-building colony. They stay there until they are capped. The day the cells are capped, we remove them and place them in an incubator until they hatch. We do this so we will be able to tell when the cells hatch.

Each capped cell is placed in an individual wire cage of ⅛-inch hardware cloth, so that the virgin queens will be separated when they hatch. Our incubator trays hold 25 caged queen cells. The trays are small so that we do not have to handle very many cells at one time. The caged cells are kept in a vertical position during the incubator period.

After the virgin queens hatch in the wire cages, we remove the empty queen cells and block off the tops of the cages with wooden cell cups.

The cages containing the queen are then fitted into a specially built frame and placed within a strong queen-right colony. The virgin queens are kept there until they are introduced into the mating nuclei. We have placed virgin queens right in the center of the brood nest of a queen-right colony without experiencing any trouble from the old queen. If it is not convenient, we sometimes hold the newly hatched queens a day or two before placing them in the strong hive by giving them a drop or two of honey. However, it is better to get them into the hive as soon as possible.

There are several reasons why we prefer introducing virgin queens to nuclei rather than unhatched cells. One, is that the method is much easier. Two, is that the country in which we live has rough roads, which can damage unhatched cells enroute to the mating yards. Three, is that we like to mark our queens as soon as they hatch, so we can identify them. Four, it is easier to cull out all inferior queens. And, five, we can hold the virgin queens for several days within the strong colony in the event of bad weather.

Our nuclei are constructed from a standard hive. A masonite division board divides the hive into two compartments, with an entrance to each in the front and back. These entrances are controlled by a push-in type latch.

These nucs are made up in our home yard with a frame of bees and brood and one frame of honey. More bees are added if necessary.

Before the caged virgin queens are placed in their individual nucs, the wooden cell cups are removed from the cage and replaced with a paper stopper. In so doing, the bees can free the queen by gnawing through the stopper.

We fasten the wire cage, containing the queen, by pushing it into the comb at the top edge of the capped brood. We close the entrances by means of

* We have given bars of grafted cells to the upper story of a double-story colony, the queen confined to the lower story by a queen excluder and have left the cells in upper story until they were capped and ready to introduce to queen mating nucs but have never tried giving grafted cells to a double-story colony unless the queen was confined to the lower story with a queen excluder. — Ed.

the latch-type cleat and move the nucs to our mating yards. When the nucs are in place, the entrances are opened only enough to allow one bee to pass in or out at a time.

We do not open the nucs again until we are ready to use the queens. When the laying queen is removed, another caged virgin is placed in the nuc to take her place.

Sometimes we leave the queens in the nucs too long and they build up to swarming strength. When this happens, we have to divide the nucs, in order to prevent swarming. The new division is then moved to another yard.

When the queen-rearing season is over, we remove one queen and the division board. This turns the two nuclei into a nice sized colony.

We make our own cages. Some are made out of wire and some out of paper. We crimp our own paper stoppers.

There is one thing that we have found concerning the use of wire in these cages for virgin queens. That is, the coating on the new wire can be toxic to the virgin queens. We have not, as yet, found a method of removing this coating. Our best cages are constructed from wire that bees have had a chance to work on, which seems to eliminate this toxic effect. These wire cages will last for several years, if taken care of.

We have been experimenting with a new type cage. It is made out of a paper type netting, much like that used in sacking onions and oranges. We do know that paper is warmer than metal, and also cheaper. But, we do not know how long it will take the bees to gnaw through the paper netting.

We are now planning on shipping package bees with queens caged in this paper netting. By the end of this season we will know more about its possibilities.

Let's Help Our Young Beekeepers

ALLAN R. VOSBURG
Fort Atkinson, Wis.

ALL TOO OFTEN one hears the lament that there are not enough young beekeepers entering the field. Resolutions are passed and 4-H projects sponsored and most of the established beekeepers settle back happy that their bee pastures and commercial outlets are not invaded.

Tom Baker is a Senior at Fort Atkison, Wisconsin, High School and though there are no beekeepers in his family he has acquired a beekeeping enterprise of his own. To do this he purchased the bees and equipment from Rude Loga when the older man had to abandon even his avocation because of the labor demands.

Tom is anxious to learn all he can about the business. He has produced and sold a crop of honey so far and markets his products under the "Baker Boy" brand. He intends to winter his bees in a single hive body if possible and feed early in the spring.

While most boys his age are interested in hot rods and other teen age amusements, Tom has tackled other projects with high labor requirements. He has a fine bed of strawberries and he rents the field next to his bee yard, hires neighboring farmers to till it and is planning to raise a crop of sweet con next year.

Tom is currently housing his extracting equipment in the honey house of a commercial beekeeper in the area to pass food handling requirements. The problem does not seem to be so much the discovery of potential young beekeepers as the needed incentive and guidance on the part of established apiarists.

It takes a brave youngster to tackle beekeeping and its sweat and stings as Tom has, and also a retiring beekeeper who will pass on his stake in the industry rather than have it securely absorbed into some already established apiary.

Loading the Extractor

KLAAS BOSCH
Haileybury, Ont., Canada

The first honey extractor I ever possessed almost played havoc with my desire of future beekeeping.

I WAS THE PROUD owner of one beehive, and when ready to take off my first honey crop I recklessly invested my savings from the paper route I had, in a second-hand two-frame extractor.

Mom went shopping one afternoon, and I considered it the best time for the intended surprise of having her cupboards filled up with the bottled up proceeds of a beautiful super of basswood honey.

Everything was ready for the first harvest. I had my extractor, I had read the appropriate books on how to use it, the bread knife would make a good uncapping tool, and a stocking taken from mom's dresser would make a suitable strainer.

The newly finished kitchen seemed to be the right place for the operation, but I had overlooked a couple of the smaller details.

In the first place I did not know that an extractor, however small, should be mounted properly, secondly that two shaky kitchen chairs make not the most ideal stand for that all important beekeeping equipment, and finally that not all second-hand extractors have leak-proof honey gates.

At first, nothing went wrong, and the level of the honey gathering at the bottom of the extractor rose steadily, leaving enough room for the contents of the last two frames before I had to open the gate.

After I had uncapped these two frames, one heavy, the other one light, I learned a little more about loading the extractor, and I also found out that honey makes a slippery floor when it is allowed to leak on the tile. But I learned it the hard way!

With the gaining of speed, the vibration increased, but I would likely have managed to get things under control again, had it not been that I lost my footing on the slippery floor, and down I went, with extractor and all.

But I had fulfilled that one ambition: I had a surprise for my mother!

The years went by, and the two-frame job made place for a four-framer, the four gave way to an eight, which was the prelude to the 30-frame radial extractor I have been using for some years now. But never, at extracting time, do I fail to heed that lesson I learned in my mother's kitchen.

Shaky extractors are a nuisance and result in undue breakdowns. Each year a score of beekeepers are faced with this trouble of vibration, and unless extractors are properly installed for heavy duty, as we can find them in the large modern honey houses, the only way to overcome this is by careful distribution of the frames.

No matter whether a 20, 30 or 50 frame machine is used, the following suggestion may be of some use to those

(Continued on page 447)

Comb Honey Production

. . . . the easy way

GUSTAVE TELSCHOW
North Lake, Wis.

"Being a back-lot beekeeper for many years and now getting old, this plan suits me all right."

WHAT IS MORE interesting on the shelf of a grocery store than a nice display of section comb honey? Even customers that don't eat honey stop to admire it. It's popularity has again been increasing for the last several years. Beekeepers in this locality do not produce enough to supply the demand. During my 62 years of beekeeping I have always produced comb honey, but sometimes gave extracted honey the preference because it required less labor. Most of the time my comb honey was produced by colonies that were reduced to one brood chamber. During the early years some of my comb honey colonies were made by hiving swarms and by artificial swarming. Throughout my many years of beekeeping many changes have taken place, but in Wisconsin the bottom board ventilation was generally used when producing comb honey.

For the last few years I have favored the two story brood chambers so as to reduce swarming and the disagreeable work of cutting out queen cells in hot weather. Now I am using extra ventilation provided by cutting an opening 4 x 9 inches in the front and back of the hive bodies and exposing the ends of the brood frames. Bees do not prefer to store honey where it is exposed and thus have a tendency to take it up into the supers. This hive body ventilation seems to be more effective than providing it all at the bottom board. Light colonies are not good for producing comb honey and this extra ventilation should not be used, as the bees try to close the open space at the ends of the brood frames with propolis. At the close of the honey season, the pieces sawed out of the ends of the hive bodies are again replaced. They are numbered to correspond with the hives as shown in the picture. Almost all the honey had been removed from the apiary when this picture was taken.

A Banner Year

This last honey season gave me my banner comb honey year. The bees averaged 160 finished sections per colony. The colony to the left in the picture was a good populous colony and

The author and his comb honey producers showing the 4 x 9-inch opening in the front of the brood chambers.

produced 217 finished sections, by using a somewhat different plan. A queen excluder was used beneath the hive bodies with one inch blocks placed between the excluder and the bottom board at the entrance for ventilation. Please take note that openings in the ends of the brood chambers were covered with queen excluder zinc to keep the queen from leaving when swarming. Bees swarming without the queen return to the hive. The worker bees use the queen excluder at the bottom board and the ends of the upper brood chamber as hive entrances. It has been said, "queen excluders are honey excluders". I haven't found them that way, so don't hesitate to use them, when producing comb or extracted honey.

When using this method to produce comb honey, it is well to inspect colonies early in the season to know that they have large queens. Small queens sometimes go through excluders so this method would be a failure. This colony mentioned had three hive bodies until the nectar started to come in freely and then it was reduced to two hive bodies, the queen excluders installed and three comb honey supers put on at that time. As time went on I gave them extra supers as needed. Four weeks later I inspected the colony and found the one year old queen laying. If no young brood or eggs were found I would have given them a frame with larva and eggs to raise a new queen and removed the queen excluders.

Being a back-lot beekeeper for many years and now getting old, this plan suits me all right. It is not intended for large commercial honey producers that have more than 20 or 25 colonies in an apiary. Colonies swarming at the same time would naturally unite and having no queen, could return to the wrong hive and create unsatisfactory results. I no longer get pleasure from bees swarming. In fact, if they cluster in tall trees, I am unable to hive them. Also I don't enjoy going through colonies, inspecting and cutting out queen cells in hot humid weather. I like this new method with less manipulations.

Beekeepers interested in this method of producing comb honey, should try it out on a small scale to see how it works in their locality. During this season I am going to take life easier, sit in the shade near the bees, enjoy reminiscing and watch them bring in the nectar.

E. A. S. Big August

J. Peter Johnson, New Haven, Conn., President.

Philip Pike, Worcester, Mass. Director.

C. F. Peterson, Pitman, N. J. Director.

H. L. Kelly, Silver Springs, Md. Director.

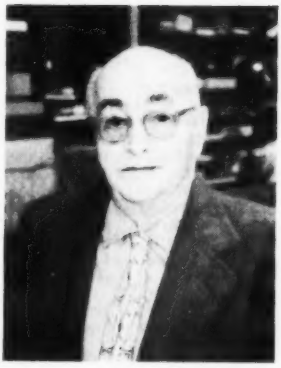
PRIOR TO 1955 there had been a strong feeling among Eastern beekeepers that there was a great need for some type of organization that would foster a closer fellowship among hobbyists and small beekeepers, as well as promote and encourage better beekeeping practices and a more active interest in scientific research.

Through the efforts of James I. Hambleton, Department of Bee Culture, USDA, George Abrams, Department of Beekeeping, University of Maryland, and others, an organizational meeting of Eastern beekeepers was arranged for June 17, 1955, at the University of Maryland. There were 210 beekeepers and friends in attendance, from Pennsylvania, Virginia, Maine, Massachusetts, Vermont, Connecticut, Rhode Island, New Jersey, New York and Maryland.

It was voted that the name of the organization should be, "Eastern Apicultural Society". Twenty-two delegates were chosen from the various states to draw up the general organizational plans. Resolutions were passed stating: "That the purpose of the organization shall be to promote the art and science of beekeeping, primarily among hobbyist beekeepers. Also, further that it shall be the purpose of the Society to develop friendships among beekeepers and others who are pursuing research, educational and commercial activities in beekeeping."

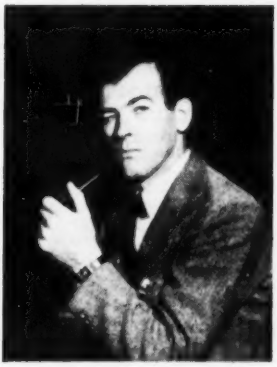
Plans Meeting

Mrs. M. L. Yates, Hartford, Conn., Sec.-Treas.



Wm. J. McCormack, Stafford, Conn. Vice President.

Edwin J. Anderson, University Park, Penna. Director.



Carl W. Brown, Jr., Ashaway, R. I. Director.

The first officers of the Society, elected at the meeting in June, 1955, were: President, J. Gaston Levitre, Rhode Island; First Vice President, Henry B. Poole, Massachusetts; Second Vice President, Roy A. Stadel, Connecticut; Secretary-Treasurer, Mrs. Maxine Manchester, Vermont; Publicity Director, Wm. K. Davis, Rhode Island; Advisory Board, James I. Hambleton, Department of Bee Culture, USDA, and George Abrams, Department of Entomology, University of Maryland.

Beekeepers' Associations throughout the Eastern States were invited to join the Society by payment of annual dues, and to date 31 such associations have assisted in the support of the Society. An Annual Conference has been held each year, by invitation, at a State College, with the State Beekeepers' Association acting as Host. These Conferences have been held at the University of Rhode Island, University of Pennsylvania, University of Massachusetts, Cornell University, New York, Rutgers University, New Jersey. The attendance at these meetings has ranged from the original 210, increasingly to 500. The 1961 meeting is to be held at the University of Connecticut, Storrs, Connecticut, on August 10-12.

PROGRAM
EASTERN APICULTURAL SOCIETY — 3-DAY CONVENTION
August 10, 11, and 12, 1961
University of Connecticut, Storrs, Conn.

THURSDAY, AUGUST 10, 1961

A.M.

9:00 Registration all day until 10:00 p.m. North Campus Men's Dormitory.

P.M.

12:30-1:15 Lunch, Whitney Hall Cafeteria, Building 43.

1:30-4:00 Tours of University Campus and College of Agriculture.

3:30 Demonstrations in Beekeeping — "We Want You to Ask for It," William J. McCormick, Vice President, Eastern Apicultural Society, Stratford, Conn.

6:00 Dinner. Whitney Hall Cafeteria, Bldg. 43

6:00-9:00 Registration: Life Science Auditorium, Building 32.

7:00 Executive Board Meeting, Life Science Building, Room 22.

8:15 Organizational Remarks. Life Science Auditorium, Building 32.

8:30 Illustrated Lecture — "Bee Hunting" and "Tupelo Honey" by Eugene Keyarts, Madison, Conn.

7:00-8:00 Organizing Honey Show — Mr. Harold L. Kelly. Organizing Gadget Show — Mr. Milo Bacon. Organizing Book Booth — Mr. Cary Rowland and Mr. Carleton C. Hubbard, in Life Science Building, Room 115.

FRIDAY, AUGUST 11, 1961

A.M.

7:00-8:30 Breakfast, Whitney Hall Cafeteria, Building 43.

8:30-4:30 Room Registration, North Campus Men's Dormitory.

8:30 Day Registration, Physical Science Building, Room 150.

9:00 Auditorium, Room 150, Physical Science Building 37. Meeting Called to Order —J. Peter Johnson, President, EAS, New Haven, Conn.

9:05 Invocation. Rev. Carl Webb, Glastonbury, Conn.

9:10 "Welcome." Dr. W. B. Young, Dean and Director, College of Agriculture, University of Connecticut, Storrs, Conn.

9:25 Response and President's Remarks.

9:30 "Connecticut Agriculture and Natural Resources." — Joseph N. Gill, Commissioner of Agriculture, Conservation and Natural Resources, Hartford, Conn.

10:10 "About an Amateur Beekeeper and the Story of a Book." — Roy A. Grout, Editor of the book, "The Hive and the Honeybee", and Associate Editor of "The American Bee Journal," Hamilton, Illinois.

10:50 "Wintering Bees in Norfolk, Conn." — Dr. Cameron A. Reud, Norfolk, Conn.

11:00 Women's Field Trip: "Herb Garden" and Lunch at "Caprilands", Coventry, Conn.

11:10 Demonstration: "Assembling Hive Equipment." Edwin A. LaBrake, Woodbridge, Conn.

P.M.

12:30-1:15 Lunch, Whitney Hall Cafeteria, Building 43.

Auditorium, College of Agriculture, Bldg. 42.

2:00 "Pesticides and the Honeybee." "Further Findings on the External Bee Mite." Dr. Frank R. Shaw, University of Massachusetts, Amherst, Mass.

2:40 "Sugar Content of Major Honey Plants." — Dr. Robert S. Filmer, Rutgers - The State University, New Brunswick, N. J.

3:00 Women's Tea. Student Union, 2nd Floor, Room 208, Women's Auxiliary, Connecticut Beekeepers' Association.

3:20 "The Bee Culture Exhibit at the Shelburne Museum," Shelburne, Vermont. — Enoch H. Tompkins. Burlington, Vt.

3:25 "The Adult Diseases of the Honeybee." — Dr. A. S. Michael, Bee Culture Laboratory, USDA, Beltsville, Md.

4:15 Demonstration: "Using Laughing Gas (Ammonium Nitrate) in Beekeeping." — Paul W. Voight, Bridgeport, Conn.

6:30 Dinner, Whitney Hall Cafeteria, Bldg. 43

7:00 Delegates Meeting, Member Assns. Life Science Building, Room 153.
1962 Host State Caucus Meeting. Men's Dormitory Lounge.

8:45 Square Dancing. Hawley Armory. Orchestra, courtesy of the Conn. Beekeepers' Association.

SATURDAY, AUGUST 12, 1961

A.M.

7:00-8:30 Breakfast. Special tables for Apiary Inspectors, Honey Packers, Manufacturers' Representatives, Educators, and Presidents and Officers of Beekeepers' Associations. Whitney Hall Cafeteria, Building 43.

8:15 Symposium for Officers of Member Organizations. Mr. Porter H. Evans, Morristown, N. J. Life Science Building, Room 201.

8:30-1:00 Registration. Life Science Auditorium, Building 32.

9:00 Meeting called to order. Life Science Auditorium, Room 154.

9:05 "Bees and Beekeeping". George J. Abrams, University of Maryland, College Park, Maryland.

9:30 Women's Field Trip. "Hillandale Handweavers, Inc.," Pomfret, Conn.

9:30 "Winter Packing". Dr. Norman E. Gary, Cornell University, Ithaca, New York.

10:00 "The Preparation of Liquid and Crystallized Honey for Market." — Dr. E. J. Dyce, Cornell Univ., Ithaca, N. Y.

10:40 Business Meeting. Report of Site Committee and selection of site for the 1962 meeting. Election of Officers.

11:45 Demonstration: "What to Avoid When Buying Bee Equipment." — Emil Pagan, Windsor Locks, Conn.

P.M.

12:15 Convention Photograph. College of Agriculture, Building 42.

12:30-1:15 Lunch, Whitney Hall Cafeteria, Building 43.

1:30 Announcements. Life Science Auditorium, Building 43.

1:35 "Containers, Commercial and Gift, for Packaging Honey." — Edwin J. Anderson, The Pennsylvania State University, University Park, Pennsylvania.

2.10 "Roadstand and Roadside Selling" — Dr. R. O. Farrish, formerly of University of Connecticut — now Agricultural Economist, USDA, Washington, D. C.

2:40 "Making Beekeepng Pay" — Panel
Co-Chairmen: Alfred J. Baptiste and Dr. James I. Hambleton.
Panel Members: Prof. George Abrams, Prof. Edwin J. Anderson, Dr. E. G. Dyce, Dr. Raymond O. P. Farrish, C. F. Peterson, Chester H. Niles.

6:30 Banquet — Whitney Hall Cafeteria, Bldg. 43. President J. Peter Johnson, Presiding. Aylmer J. Jones, Malden, Mass., Toastmaster. Guest Speaker—Dr. James G. Horsfall, Director of The Conn. Agricultural Exp. Sta. New Haven, Conn.

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Research Review

DR. ROGER A. MORSE
Research Editor of Gleanings and Ass't. Prof. of Apiculture
Cornell University, Ithaca, N. Y.

A New Sweet Clover Variety:

SWEET CLOVER is, without a doubt, the best honey plant in the United States and Canada. Not only is the honey of unusual quality but the plant is a prolific yielder of nectar. However, sweet clover has not been popular as a hay or silage plant. This is because it contains a chemical called coumarin, which decomposes into dicumarol. Dicumarol can cause internal bleeding in livestock and is often fatal.

U.S.D.A. Researchers and the Wisconsin Experiment Station have just announced the release of a new sweet clover called Denta. This new variety of sweet clover has only 1/20th as much coumarin and is satisfactory as a livestock food. The new variety will grow well in the northern great plains and western corn belt.

Foundation seed will be available in 1962 to certified seed producers and certified seed for farm planting should be available in 1963. Beekeepers hope that the new variety will have nectar yielding qualities of the wild sweet clover.

Gaines, Stanley H.
Now a non-bitter sweet clover. U.S.D.A. Farm Paper Letter No. 927. April 24, 1961.

Queen Attractiveness:

WHEN THE mandibular glands (glands located in the head) are removed from living queen honeybees, these modified queens lose approximately 85% of their attractiveness to worker bees. Newly emerged virgin queens are scarcely attractive to honeybees but they soon become attractive. Virgin queens which have been aged in confinement for 28 days are as attractive as mated laying queens.

Queen attractiveness is an important factor in the social organization of the honeybee colony. Without some means of attracting worker bees to the queen there would be insufficient dissemination of secretions from the queen to the workers. The fact that attractiveness of the queens decreases when the mandibular glands are removed indicates that attractiveness largely results from the mandibular gland secretion. It is interesting that queen attractiveness appears to be a function of age rather than mating or egg laying activities.

It is known that the mandibular glands of the queen are a source of queen substance which is responsible for the inhibition of ovary growth in worker bees and the inhibition of queen cell construction. It is probable that queen substance and other chemical substances present in the mandibular gland secretion causes worker bees to recognize and be attracted to queens.

Gary, Norman E.
Queen honeybee attractiveness as related to mandibular gland secretion. Science 133:1479-80. 1961.

Transferring Honeybee Eggs:

IT IS NOW possible to transfer honeybee eggs of any age using specially designed forceps. The space between the two prongs of the forceps should be 0.23 mm. (0.009 in.).

In transferring honeybee eggs it is important that the eggs not be squeezed

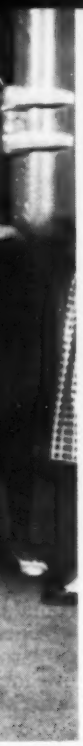
(Continued on page 445)

A swarm clustered on an old mail box post on the corner of 5th and Main Streets in Tulsa, with little regard for the Tulsans who stand a good safe distance away. — Photos courtesy of Tulsa Daily World.

By slidi
Cory scr

Curtis Cory, beekeeper and operator of the Western Printing Co., Tulsa, begins the difficult job of getting the bees off of the post and into the box.

The last
hands to



in Tulsa,
urtesy of

ficult job

By sliding the edge of the box up the side of the post, Cory scrapes the bees off the post and into the box.

The last few are always the hardest and Gory uses his hands to scoop up the remaining bees. A job well done.

Editorials

Every Colony As Good As the Best

THIS IS A WORTHWHILE objective but difficult if not impossible to attain. When we visit the average apiary at the close of the major honey flow and find some colonies piled high with supers and others with comparatively few supers, we realize there are differences in the honey gathering qualities of colonies.

However, beekeepers should strive to have all colonies as good as the best, by having each colony headed with a good queen, provided with good combs and ample comb space and given intelligent management throughout the season.

Importance of Populous Colonies

MOST BEEKEEPERS in this area report colonies in good condition. This is June 12. We had a cold rainy April and May. For days during the month of May when dandelion and fruit trees were in bloom, cool weather kept bees in thir hives. Occasionally, however, we had a good flight day and the bees apparently made up for lost time. It has been necessary to put on supers to make room for incoming nectar and pollen. Ordinarily when there is a continuous spell of warm weather, this season of the year bees make preparations for swarming. There have been a few swarms but not many. If swarm cells were started, a cool spell of weather usually caused bees to destroy the cells.

Prospects in this area for a crop are quite promising. There is considerable moisture in the sub-soil. Dry weather prevails in some areas. Honey plants are about 10 days late in blooming. Ordinarily locust blooms the last week in May. It is just now in bloom.

As stated a number of times one secret of having strong colonies is to leave a super-abundance of honey in the hives in the fall so that the bees do not starve during the winter and will have an abundance of food during the early spring months. Such colonies are then able to take advantage of every day that is warm enough for the collection of nectar and pollen. Colonies that are weak in bees and do not have adequate stores cannot build up rapidly. Populous colonies take advantage of every available opportunity to bring in nectar and pollen and reach their maximum strength in time to take advantage of the major honey flow.

Beekeepers in the far North also require populous colonies for the main flow which is of short duration. Most of the beekeepers in the prairie states of western Canada kill off their bees in the fall with Cyanogas and start with packages the following spring. These beekeepers have an entirely different method of colony management, as brought out by J. W. Edmunds, Edmonton, Alberta, in his article "Honey Producers versus Beekeepers", appearing in the April 1961 Gleanings. Packages are installed during early May in hives containing combs of honey and pollen carried over from the previous season. The main honey flow lasts less than a month, during July.

It appears that beekeepers should make a study of conditions that prevail in their respective areas in order to apply apiary management that will result in maximum honey crops.

Entrance Diagnosis

IT IS SURPRISING what one can tell about what is going on inside of a hive of bees by examining the hive entrance, that is, observing the bees that leave and enter the hive.

During a heavy honey flow bees leave the hive rather quickly, circle around in the air above the hive two or three times and then fly off in a certain direction. Other bees loaded with nectar or pollen enter the hive. If they are well loaded with nectar, they land on the entrance or alighting board a short distance from the main entrance, then walk in slowly. This behavior indicates a good honey flow.

If bees leave the hive and fly around aimlessly and if bees that are entering the hive do not appear to be filled with nectar or do not have pollen on their legs this would seem to indicate a scarcity of nectar and pollen. Sometimes, however, when there is a pollen flow on, bees carry in very little nectar.

At other times bees will be seen at the hive entrance hovering about, moving up and down as if attempting to gain entrance to rob the honey out of the hive. These are young bees learning to fly, or trying out their wings. Inexperienced beekeepers may assume this behavior indicates robbing. When bees are seen trying to gain entrance to a hive through a small opening between supers or underneath the hive cover, this indicates robbing.

Those who have observed and studied bee behavior know in general, conditions that prevail in the apiary without examining all of the colonies. If for example, during a heavy honey flow, the hive entrances are covered with bees this may indicate a need of more supers or comb space to make room for incoming nectar. If hives crowded with honey and brood are not supplied with more supers, swarming is likely to occur. The main cause of swarming is congestion within the hive.

During a sudden unexpected heavy honey flow many carloads of honey are lost each season because beekeepers fail to put on supers in time.

Beekeeping Terminology

SOME YEARS AGO The A. I. Root Company put out a small booklet entitled "Beekeepers' Dictionary". In going through this booklet we find some terms that are somewhat obsolete or at least very seldom used at present.

For example, we find "bar frame", a name sometimes applied to a movable frame in Great Britain.

The terms "brood chamber" and "brood nest" are frequently used interchangeably or synonymously. The brood chamber is that part of the hive in which the brood is reared. The brood nest is that part of the brood chamber occupied by eggs and brood. The term also applies to that part of the brood chamber where the bees are clustered when they have practically no brood, as for example, during their period of quiescence in early winter.

"Cloister" hive is a hive provided with a cloistered entrance which excludes the light in winter weather to prevent the bees from flying. Some of the older generation are probably familiar with this term.

The term "honey board" is now practically obsolete. It is defined as a slatted board placed between the brood chamber and the honey chamber to break the continuity of the two; formerly a board with holes in it to support the receptacles of comb honey. A queen excluder is sometimes called a honey board.

Then we find the term "Mel-Extractor" which is defined as a honey extractor.

The term "queening" is defined as the act of introducing a queen into a queenless colony of bees. We now refer to this as requeening.

A "cast" is called a second swarm, also is applied to any swarm that issues after the first or prime swarm leaves the hive.

And so we might go on and on mentioning beekeeping terms used in different countries. As time goes on it is hoped that terms used may be simplified and clarified so that beekeepers, especially beginners, may have a better understanding of beekeeping terminology.

Live and Learn

PROPOLIS PETE

ONCE UPON a time I heard a story. It seems that a very wealthy individual had made his fortune in the stock market. When asked how he did it, he answered that he had a secret formula. When pressed for more details, he explained that whenever he had some money to invest he asked a certain investment counselor for his pet recommendation. Then he reversed the advice that he got. If the counselor said to buy something, he would sell it short, and he made a killing every time. That story reminds me of the advice I give, especially about what the bees will do.

I have always claimed that regardless of whether or not a season was early or late, plants followed the calendar closer than they did the prevailing weather reports, - - - -but I have been keeping bees now for 27 years and never yet have I seen plant life as late as this year. The pollen and honey plants are way over two weeks late, and the bees are even later. This is being written on June 1st. At this time in an average year, I should be able to guess within 15 or 20 percent of what my final crop will be. Nearly all of my supers should be on the colonies, with only a few in reserve to take care of the abnormally good colonies. Swarm control should be my main chore. But look at what actually is the case. And what burns me up most is the fact that history will show that the weather department says that this cold miserable spring, with all its rain and mist is nearly normal on both temperature and precipitation.

I have seen black locust come in as early as May 15th, never later than May 30th. This year, on May 30th, the black locust does not even show a start of the blossom buds. Fruit bloom came in late, and the runty blossoms rotted before they were fully opened. Colonies rich in stores a month ago are destitute, and barely making a living.

The thing to do under such circumstances is to forget that it is the first of June and feed anyway. I tried it, and they would not take the feed. Apparently just enough nectar is coming in to support them, but not enough to let them grow or put up a surplus. They always prefer nectar to syrup.

Just how much the season has to do with it I don't know, but so far I have had eight queens fail. Some quit completely, without having the decency to die and let the bees rear new ones to take their places. Others are laying eggs that don't hatch, leaving five or six empty cells for every one that carries through to sealed brood. The queens are big and healthy looking, and I have wondered if the scattering is due to their laying more eggs than the nurses can take care of, or whether it is a physical inability to lay fertile eggs.

Of the eight that I requeened, I put in five new queens from the South. The other three were in colonies that seemed to be doing all right, but which just didn't have enough brood to spare a couple of frames, or bees enough to shake into the other hives. So I united the entire colony with the duds, and when I looked at them today they seemed to be happy enough.

Some spring dwindling seems to be inevitable, even with the best stock, the best management, and a vast plenitude of stores. This year there doesn't seem to be any end to it, so what to do? Maybe the law of averages will catch up to the season, and let us end up with enough of a crop to keep the customers happy.

Speaking of customers, and just to show you that we haven't lost our sense of humor entirely, a few days ago, a customer called for honey. Last October, after I was sold out, this chap came and wanted comb honey. I told him there would be no more honey until the flowers bloomed in the spring, tra la. So last week he came in and said, "Well I see that the dandelions are blooming. Is my comb honey ready?"

Retama (

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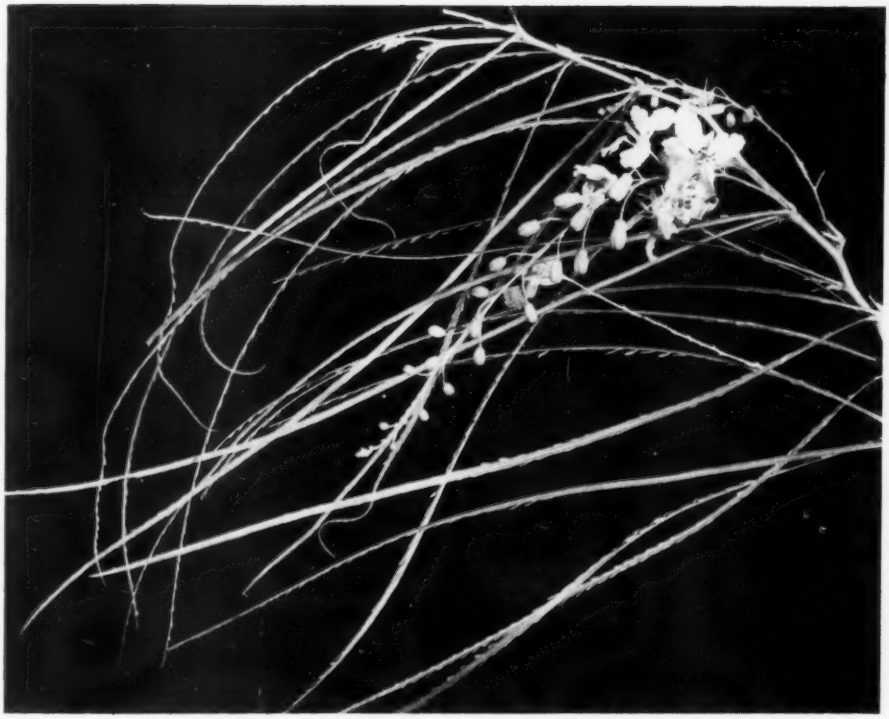

Retama (**Parkinsonia aculeata**).

Let's Talk About HONEY PLANTS

DR. HARVEY B. LOVELL
University of Louisville,
Louisville, Ky.

Retama (Parkinsonia aculeata). A low green shrub common in south Texas, where it sometimes becomes a weed, but is often used as an ornamental. Its long racemes of yellow flowers are borne throughout the summer. Its leaves are 12 inches long, with numerous tiny leaflets only one-eighth inch long. It develops into a small tree with spiney branches.

A closely related species is called Palo verde (**Parkinsonia torreyana**) or green bark acacia. The flowers of Palo verde paint the desert yellow for awhile and give it a month of glorious surpassing beauty - the brightest and most delightful month of the desert's year. C. A. Brion wrote in Gleanings, Jan. 1932 "If the season is not too fast, some honey may be stored from the Palo verde flow. Twenty to 30 pounds may be expected in a good season. While the honey is not rated as the best, it passes as a good table honey, and there are some people who prefer its flavor to all others."

As for Retama, Parks told me "it is a good honey plant. Will Tyce got a

surplus one year - a light yellow honey with a kind of an acid taste. He would put a few hives down where the plant bloomed profusely." At Crystal City in west Texas, beekeepers made considerable amber honey with a fair flavor.

Vansell spoke highly of Palo verde in California. He reported that bees visit the blossoms freely for nectar and pollen.

American Holly (Ilex opaca). I recently received a pound bottle of holly honey from Andre Prost of New York, packed by Raymond Fisher of North Little Rock, Arkansas. Mr. Fisher writes me that he no longer makes large crops of holly honey due to an insect which infests the blossoms, but that he purchases honey from beekeepers in the holly section, when he can get it. The honey is white with a pleasant flavor, a high grade product. J. V. Ormond, also of Arkansas, writes that the honey is non-granulating.

Louisiana. Seventeen pounds a day have been reported in April and May but the blooming period is short and bad weather often spoils the flow (according to Oertel in **Bees**. July 1949). The holly blooms April 25 to May 5. He describes the honey as light colored with a good flavor and a medium body. His largest surplus was 75 pounds.

Texas. Yaupon **(Ilex vomitoria)** is the species of holly most important in Texas. In Gleanings several years ago A. H. Alex made the following comments: April 6, 1950, "over most of East Texas bees have started gathering on Yaupon on which the bloom appears promising."

May 2, 1950. "Throughout most of East Texas a good flow was reported from Yaupon. Scale colonies in the A. and M. College Apiary show gains of from 43 to 50 pounds from this source. In East Texas Yaupon produced a fair flow but it was interrupted by late cold weather."

Roy S. Weaver wrote me from Navasota, Texas, that Yaupon produces a light amber honey with a fair flavor, a medium body, the largest surplus 30 pounds, the average 15 pounds, the honey granulates slowly.

Georgia. A. V. Dowling told me that a surplus from Yaupon is sometimes stored at Homerville. He describes it as a white honey with a good flavor.

Ilex verticillata, known as black alder or winterberry, is important in the northeastern states and Nova Scotia, and grows as far west as Minnesota. It has deciduous leaves and bright red berries which last all winter. It is a good nectar producer in Maine. All the hollies are dioecious (that is, the stamens and pistils are borne on different bushes, ony the staminate bushes produce pollen and only the pistillate bushes produce berries.)

Ilex glabra, gallberry. In the southeast this bush produces a fine non-granulating honey wihch has been discussed in anoher column.

Mr. F. W. Schwoebel sends me from Key West, Florida, the flowers of the orchid **Dendrobium phalaenopsis,** which he says had caught several bees. Another trap for the poor honeybee. The dead bees are still in the flowers.

KEEP

GLEANINGS

COMING

"I'M NOT TOO SURE. I THINK I LIKE THE OLD FARM STAND BETTER!"

Serve piping hot honey muffins with those summer salads. — Photo courtesy The Kellogg Co.

When Ol' Sol Beams

MRS. BENJ. NIELSEN
Aurora, Nebraska

DURING SUMMER weather with its enervating heat, cold foods and frosty drinks are the order of the day—perhaps too much so. And, whether salads be crispy or hearty, it is so easy to pick crisp crackers from the array of seemingly endless variety the grocer now stocks. It is nice, however, to have some honey-way muffins every now and then. Sour cream will accumulate too! So why not work it into some yummy muffins and keep your hand in honey-way practice? You might keep the dry ingredients mixed, labeled and ready to go on a cool day. Then preparation is so simple that piping hot muffins are ready in a twinkling.

Not much honey in the salad dressing, you say? But repeated again and again it counts up. And what it does for subtle flavor!

Don't forget Nature's finest sweet in toppings for ice cream, salad dressings, and in coffee and tea, both hot and iced. May its natural quick energy help you weather these hot summer days.

Honey Sour Cream Muffins

Two cups whole bran cereal, ¼ cup honey, ¾ cup sour cream, 2 eggs, ½ cup sifted flour, 1 teaspoon baking soda, ½ teaspoon salt, and ½ cup sugar.

Combine bran, honey and sour

(Continued on page 445)

Using the new Schade method, Mary Subers determines the diastase number of honey with the photoelectric photometer. — A USDA photo.

A Survey of American Honeys

Number nine in a series of ten articles on the different honeys of America.

9. Effect of Storage on Diastase Content [1/]

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1/ This is one in a series of articles describing a large-scale study of the composition of honeys from over the United States. Complete data interpretation and conclusions will appear in a forthcoming Department of Agriculture publication.

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DIASTASE (or more properly, amylase) is an enzyme that "digests" starch. It has long been known to occur in honey. Its function in the ripening of honey is not clear, nor is it known with certainty if it is introduced by the bee or arises from a plant source (nectar, pollen, yeasts, etc.). Conceivably, diastase in honey could arise from all those mentioned. Periodic interest is shown in this country in the diastase content of honey; it arises when European importers refuse honey shipments or downgrade them because they find low values of diastase in samples.

It is thought in some European countries that honey loses much of its nutritive or protective value when it is heated. Since the enzyme is destroyed or weakened by heat, and is fairly easy to measure, the presence of certain amounts of diastase have been used for many years as assurance that honey has not been heated excessively. There have been some differences of opinion on whether a honey may have a low diastase value, but still be an unheated honey. There is no doubt that some types of honey produced in this country are so low in diastase as to not meet European requirements, even though they had never been heated. This, and other evidence that showed variable effects of heating on diastase content, have led to modification of import reglations in West Germany, though at this time the new rules are not known.

In general it has been held that heating is the only factor that would weaken diastase in honey. Information in the Dutch and German scientific literature indicated that some honeys lose some diastase in storage, but no definitive work was reported. In this country, Schade, Marsh and Eckert [2/] at Davis, California, recently developed a new method for diastase determination that appears to have won favor in Germany. We have used it for our studies on the composition of American honeys.

As was described in the preceding article in this series, some of the honey samples which we received from producers for this project were divided. Part was stored at -4°F. which minimized chemical and enzymic changes. After a suitable interval, these samples and their corresponding samples stored at room temperature (73°-82°F.) were analyzed for diastase activity.

Diastase Decreases in Storage Without Heating

None of these samples had ever been heated. Twenty pairs of samples stored at the two temperatures were analyzed. The time of such storage varied from 4 to 21 months. All sub-samples stored at room temperature showed much lower diasase values than the corresponding part of the sample stored at -4°F. They did not all show the same rate of loss. The average diastase value of the cold storage samples was 22.0, while that of the portions stored at room temperature for an average of 13 months was 13.4. This is a 38.9% loss of diastase, corresponding nearly to 3% per month. Many of the samples with acceptable (to European importers) diastase values had values after storage of one to one and one-half years that would not be acceptable. Only samples with exceptionally high values at the start had values that would be considered good at the end of the storage period. Furthermore, it was found that the rate of loss for high diastase samples was significantly greater than was the rate for moderate or low-diastase honeys.

Another way to express our results is that in ordinary storage at room temperature without heating, diastase in honey has a half-life of 17 months. This means that in 17 months a sample will lose half of its diastase. In 17 more months, half of the remaining diastase would be lost, and so on.

Further Work Planned

We are planning to look further into the stability of diastase and other enzymes in honey during different temperatures of storage. It is not uncommon in processing and storage for honey to be exposed to temperatures much greater than those used here. Temperatures averaging 85° or 90°F. for a few weeks or months might have several times the effect of 70°-75° temperatures. None of this enters the realm of the effect of heat processing of honey, which has been the aspect of this problem previously studied.

There is one additional bit of information in the literature on the effect of ordinary storage of honey on its dias-

2/ Schade, J., Marsh, G. E., and Eckert, J. E. Food Research 23, 446 (1958).

tase content. In the work of Schade, Marsh and Eckert referred to above [2/], they published data on seven honey samples stored at 20°C. (68°F.) for 13 to 15 months. They stated that the diastase activity had "decreased slightly but not significantly in most cases". Using their data, we analyzed them statistically and found that the changes were highly significant [3/]. Their data showed an average decrease for the seven samples on which they gave data of 10.1% in diastase number, or 0.72% per month. This rate of loss is real, but does not present a serious practical problem.

3/ Exceeding the critical value at the 1% probability level.

Factors Affecting Diastase Loss Rate

We attempted to find if any significant relationship existed between the rate of loss of diastase in our storage experiments and the composition of the honey samples. Among the 20 samples the average rate was 2.95% per month, but the lowest rate was 1.41% and the highest 4.76%. No significant relation was found with moisture, total acidity, hydrogen ion concentration (an expression of active acidity or pH) or ash content. Rate of loss was found to be significantly [3/] higher in the samples stored shorter times (4-8 months).

(Next month: - Summary and conclusion.)

Smoke 'em

W. HUDDLESTON
Ulster, Ireland

ONE FINE summer morning a large swarm came out of a hive and settled on a high tree and stayed there for three days. I tried everything I could think of to get it down but to no avail and it left on the third day. I could do nothing but watch it fly away.

The next day another swarm issued from another hive and settled on the same tree. All at once an idea came to me that I had not thought of with the previous swarm. I got a bale of hay and set it a little up wind from where the swarm was clustered and set the bale on fire. The smoke rose up into the swarm causing the swarm to break apart and fly about in a disorganized manner. I then ran to the house and got the garden hose and turned the spray up into the flight of the bees. In very little time they began to cluster again but this time on a much lower branch which enabled me to hive them with little difficulty.

Smoke is a great asset to the beekeeper, as we all realize, but many of us do not take full advantage of smoke in working our bees. The smoke box which was recently written up in one of the bee journals is an excellent method for removing honey. The smoke penetrates evenly over the super and will drive the bees down equally as well as the use of the carbolic acid board. I have used it with great success for a number of years and have taken off a great deal of honey in one day's operation.

By driving the bees out of the supers of honey with smoke you do not run the chance of contaminating the honey with the use of the acid board.

Next time you have a swarm that you cannot reach or when you plan to take honey off again try the smoke method and see if it doesn't work for you as it has for me. If you have had similar experiences I would enjoy very much hearing from you in regard to the use of smoke.

A CORRECTION

Referring to A Book Review of "Beekeeping in the Tropics", page 164 of March 1961 Gleanings in Bee Culture, the publishers are Longmans, Green & Co., Ltd., 6-7 Clifford Street, London W1 and their United States office is Longmans, Green & Co., Inc., 119 West 40th St., New York 18, N. Y.

The Importance of Bookkeeping In Beekeeping

C. R. BECK, Director of Testing
Sioux Falls Public Schools
Sioux Falls, South Dakota
Chief Bee Inspector
State of South Dakota

BOOKKEEPING for beekeepers is an arduous and painstaking task. It can be compared to a speedometer. That is, bookkeeping determines the speed at which you are traveling in your aim for profits and the distance you have traveled toward your desired goal. It is understandable that some people keep bees for the enjoyment they receive from studying and working with them, but the great majority of beekeepers desire and hope to make a profit on their operations. This is perhaps the realistic way to evaluate it.

I have been a high school teacher, counselor, and director of testing for the last 35 years, and with the exception of the first two years of teaching, my experience has been in the same school system. In 1943, my wife and I decided to take a good second look at our financial progress up to that time. Our analysis was certainly disturbing as there was little to show financially, and as our state at that time did not have a teacher retirement law nor were teachers covered by Social Security we decided that something should be done. Salesmanship had been successful up to a point in supplementing our meagre income, but somehow satisfaction in the work was lacking. Having participated in high school and college athletics, it seemed that physical activity at least in the summer time was what I needed.

Our son, who was 12 years old, became interested in bees and naturally father had to help finance him. We started by buying two colonies from an elderly beekeeper who has since given us much good advice and help

and to whom I have been very grateful. The partnership with the son lasted one year and I bought him out. He didn't like bees and was quite allergic to a sting. Naturally, during the beginning period I read almost every book that pertained to beekeeping that I could get my hands on. At the same time, I completed the extension course on beekeeping at Pennsylvania State College. Also, the first two summers I spent considerable time working for one of the largest commercial beekeepers in the area. These were enjoyable summers and the desire to enlarge my operations was growing. From two colonies to 400 has been a gradual expansion in 17 years. With help from my son-in-law we manage to get the work done and at the same time I spend about 60 days working as the Chief Bee Inspector in our state.

Our work begins about April 1, and the deadline for wrapping the bees is November 11. Most of the work up to June 1 and after September 1 is done on weekends and after school hours. We do not like to work on Sundays, although we may visit the bees.

From the beginning we have tried to keep accurate bookkeeping records, and for the 17 years where we could improve the bookkeeping system an attempt has been made to do so.

In the first place an accurate inventory of all capital equipment should be kept and of necessity this must be kept current from year to year. Perhaps the important thing about this inventory is the determination of the correct depreciation amounts you will profit by on your income tax. Regardless of the period of depreciation set up for your capital investment, it is wise to consider production changes.

From an inventory, it is an easy thing to set up the bookkeeping records that one desires and can use. From our past beekeeping experience, we have devised the following headings for our columnar bookkeeping. These in turn can be broken down if one cares to analyze carefully what is taking place in his financial operations.

Many of these columnar headings are self-explanatory, but perhaps a needed explanation is in order on some of them. For example, on column number 1, we always count the number of colonies as the number we start with at the beginning of our yearly operation in April. It includes the over-wintered colonies, the packages and each division made. Regardless of the number that fold up or that are doubled up we have believed that they should be counted in your operations as you have had the expense of starting them. It is true that your averages and net returns per colony would look better if you didn't count the failures and doubled up ones, and it is much like the farmer who had so many acres at planting time but considerably fewer acres at harvest time when the averages look better.

Column number 4 on labor costs requires careful accounting as sometimes it is necessary to hire part-time or full-time helpers during the season. Oftentimes different rates of pay are necessary for experienced and inexperienced workers. If a small share of the crop or bonuses are paid many complications can arise and the same is true of the payment of Social Security taxes on worker's wages.

Column number 5 on supplies may be broken down into sub-headings if the beekeeper so desires. Costs of package bees, queens, containers, feed, legume seed, and miscellaneous items add up to a startling sum at the end of the

1	2	3	4	5	6
Number of Colonies	Total Pounds Produced	Average Per Colony	Labor Costs	Supplies	Truck/Car Operation

7	8	9	10	11	12
Hired Trucking	Utilities	Taxes, Insurance Rentals, Memberships and Journals	Winter Losses Disease	Total Costs	Average Price Per Pound Received

13	14	15	16	17	18
Total Returns	Net Returns	Net Returns Per Colony	Capital Investment	Total Capital Investment	Depreciation

year. The cost of supplies cannot be over-stressed and one should be cautious in distinguishing between costs and capital equipment. It should be remembered that costs are fully deductible on income taxes while capital investment is dependent on the period selected for depreciation. This makes a significant difference.

Column number 6 on truck and car operation costs, presents only a problem on how one uses his family car in his bee business. If the car is used both for personal and beekeeping driving, a strict accounting on the number of miles driven for beekeeping should be kept. If all of one's beekeeping activities are performed by his truck, the car operation costs present no problem, but it should be noted that car operating costs for one's beekeeping activities are as much an expense as truck operation and repairs.

Column number 9 on taxes, rentals, insurance, memberships, and journals necessitates such things as property taxes, personal taxes, and registration fees if your state has such fees. Rentals must be considered as such and if in place of a monetary payment the beekeeper gives the farmer a can of honey this must be costed at the average price he receives for the honey sold that year. Buildings and equipment are property and often we are confused by varying mill rates in different locations. The beekeeper is fortunate who is assessed in one location for all his property and equipment and at reasonable rates. Workmen's compensation and special types of insurance should be considered as costs. Memberships in national, state and local beekeeping organizations are costs. The same can be said for the cost of books, journals, and the expenses connected with attending meetings that increase the knowledge of the beekeeper wherein it can be determined that this is essential to his continued operation.

Column number 10 on winter losses and disease should be fully deductible, but care should be exercised as to legitimate percentages of the cost of capital equipment that is destroyed in disease prevention.

Column number 12 on the average price per pound received is a difficult one to handle and often cannot be completed until six to nine months after the close of the fiscal year, especially if one is a member of a co-operative. Where a producer sells to packers, co-operatives and locally it is necessary to average this to find the true average price per pound for the year's crop.

Column number 13 will give the Total Returns. It is only necessary to subtract the total costs from the total returns to get Column 14 which produces the net return per colony. To most beekeepers the net return per colony is one of the significant results of accurate bookkeeping and it is often the indicator of continued operations or selling out. We are often faced with the problem of expansion due to the ups and downs of net returns, but it is my observation that beekeepers operate under the economic principle of increasing costs and this can only be overcome by a sharper upturn in prices for honey in the near future. We also operate under the economic principle of diminishing returns and it would pay each beekeeper to become familiar with this principle. We are much like the farmer who puts more fertilizer and labor into a given acreage and he gets better returns. He repeats this again and again but eventually reaches a point where his net return is smaller.

Column number 16 represents Capital Investment and how much is put into buildings, trucks, hives and other equipment during the current year. Sometimes we overlook capital outlays such as a new shovel, mop pail, fencing, etc. We have often wondered if it would be possible for bee supply houses to stamp the equipment they sell with the date of purchase by the buyer. Thus one would always know the life expectancy of the marked equipment.

Column number 17 is only an extension of the preceding column, but it is important to know from the beginning of your beekeeping operations what the total capital investment has been. It also has some important implications as one contemplates selling or is forced to sell for some reason. Perhaps one should take into consideration on his total capital investment what economists call imputed interest. This is interest that your capital would have earned at current rates had you put it into some other investment rather than beekeeping.

(Continued on page 441)

The author in the process of hiving a swarm of bees.

My Start With Bees In Argentina

PETER VITEZ
Buenos Aires, Argentina

I WAS BORN in Vienna, Austria and immigrated to this country in 1950. I had always lived in big cities and knew nothing of bees.

I had my first contact with them only about five years ago, when I decided to attend an agricultural course in the western part of the Province of Buenos Aires. I can say, it was love at first sight, on my side anyway, and you know, he who really gets the "bee-fever", will keep having it all his life.

So I decided to start my own bee business and try to make a living from it. But for some reason or other, only a year and a-half ago I really got started, with 25 second-hand hives, having increased now to a hundred.

My little farm of 15 hektares of grassland is situated in an (by Argentine standards) average honey region, near a small quiet town, named Dolores, in the Province of Buenos Aires.

The country here, like nearly all the rest of the Province, is flat and plain; there are no natural forests, but many plantations of Eucalyptus, all kinds of fruit trees, acacias, poplars and willows mainly. About three fourths of the surplus is unimproved grassland (cattle country), with only an occasional alfalfa field here and there, the rest are the normal plantations and some corn and sunflower cultures. The earth is excellent and rainfalls abundant (950 mm per year in Dolores). Although the eucalyptus, the acacias and the citrus trees produce nectar reliably every year, the major honey flow, which starts the last days of December and ends with January, comes from the wild flowers of the pasture lands: mainly blue thistle, birdsfoot trefoil, clovers, mint and many others. The climate is very favorable too; there are only about three weeks in winter with no pollen and

nectar coming in, so the bees suspend brood rearing for only that time. Even in these weeks it is rare indeed, that the bees can't make their cleansing flights during three consecutive days.

It must not surprise you, that the average honey surplus per hive is 120 pounds per year, providing there is good management.

When I began working here with my 25 purchased hives—all double brood chamber Langstroth hives, which are the recognized Standard—I found them infected with European foulbrood. So, right at the beginning, I got headaches with my bees. I did everything I could to cure them and this was how I did it. The hives with light infection, where the bees had still been capable of removing the dead larvae, so only empty cells were found, I gave a chemical treatment with Streptomycin, once a week during three weeks. I preferred to apply the solution (1 gram of powdered Dihydrostreptomycin to 2 liters of sugar syrup) by sprinkling it directly on the brood combs. The hives with heavy infection I treated both chemically and by removing the queen for 10 days, so even weak colonies got a chance to clean up their brood.

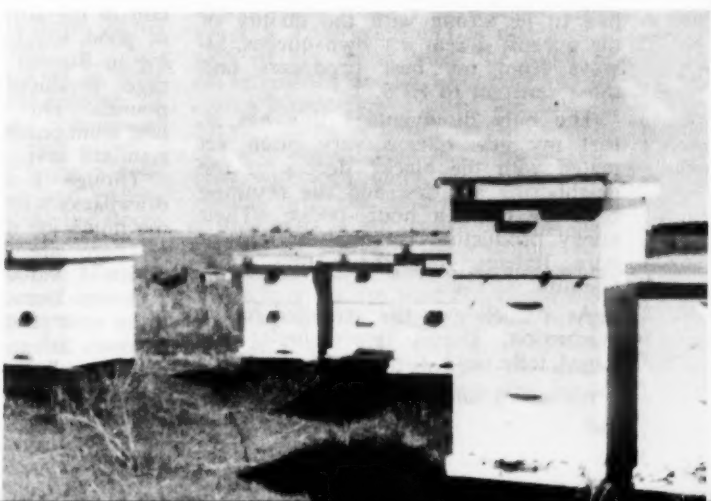
In both cases after three weeks, I got healthy brood in my colonies, but later some recurrence could be noted, but never again occurred heavy infections.

I have observed that EFB appears here almost exclusively in the first two spring months (October, November) and disappears towards the main honey flow. But it is not easy to eradicate completely, as every spring I have to deal with a few infected colonies. Incidentally EFB has appeared first in Argentina only a few years ago and has become a big menace to many apiaries. American foulbrood is still unknown. All the other diseases of the adult bee, as Nosema and the mite disease, are little problems.

My hive management aims at having three to four hive bodies boiling over with bees at the start of our main flow (after Christmas).

Populous Colonies Essential

To get this I proceed as follows: at the beginning of the swarming season—in my locality, mid-October—the colonies with normal development will have from seven to nine combs full of brood; so I take four or five of them, mostly capped brood, with plenty of bees and put them above the two brood chambers or an inner cover with screened center hole and entrance opening. I have made special covers with deep rims, leaving a three-inch wide opening on the front side, for that purpose. That is the only extra equipment I need. I replenish this third hive body with combs of honey and empty, built combs, and below I prefer to fill with foundation. The day after making up this nucleus, I give it a ripe, well built queen cell, ready to emerge. After 10 to 12 days the new queen ought to be laying. After that it is only necessary to give both partitions new space (supers) for the increasing income of nectar. With this method I have found brood chamber reversal or any other swarm preventive measures unnecessary, because the two queen hives simply will not



Beehives are neatly painted and numbered.

swarm. Being divided at the precise movement, the bees are beginning to have that "crowded" feeling, they won't swarm and by the time both partitions are strong, the major honey flow is beginning and they forget about swarming again, providing the queen is not failing.

Once the good flow starts or maybe a little earlier, I throw the two colonies together, by just removing the screened inner cover. Of the two queens I leave the one that seems the better to me, and exclude her in the lowest brood chamber; from now on brood rearing is to be restricted.

This method has proved very efficient to me and does not involve much extra work. Of course, I had a few of the two queen hives swarming, but these must have been of the swarming type. I wonder if the Demaree treatment would have prevented them!

I change queens every year, but only the ones with average egg laying capacity and honey production. The outstanding ones I leave for another spring build-up and for breeders. The right judging of a queen and her performance is far from easy, I guess. I sometimes start wrong by killing an old queen, which would have done as well or better for another season than the new queen.

I Prefer to Do My Own Queen Rearing

I have found it hard to get good queens. Maybe it was just bad luck, but every time I ordered some pure Italian queens, and got them well introduced and laying, after a few weeks they were all superseded. So something had to be wrong with the quality of the queens. I rear my own queens, always from my best producers and those resistant to EFB.

The only disadvantage this has is, that my new queens very often get mated with the black* drones of the neighboring apiaries, and the resulting bees are quite a hodge-podge. Their honey production is equal to that of pure Italians, but they sting more liberally.

As a sideline to the extracted honey production, I run five colonies for Royal Jelly, so I dispose of queen cells throughout the season. For producing the Royal Jelly I've found the queen-right two and three chamber units convenient as most of the breeders in the U. S. use them. Each colony renders about 25 well-nourished cells per day. I sell them in their natural wax cell to private clients and to a cosmetic laboratory, that uses them in making beauty creams. I don't know how this is in the U. S., but here the demand for Royal Jelly has begun to rise again, with remunerative prices.

Beekeeping supplies are readily available and are of good quality. Only some things are unknown yet, such as ready-wired foundation and mechanical hive loaders; but the last explains itself partly, because no migratory beekeeping is practiced in Argentina. In theory, production per hive could be raised by migrating, but for one thing the permanent locations are very satisfying and for the other, trucks and truck maintaining are disproportionately expensive at present.

Beekeeping Associations in This Country

There are only two well known associations, both in the Capital, Buenos Aires. Beekeepers' meetings and cooperative working are very rare, so in this sense, there remains much to be done.

As to honey locations, I want to add, that in the North of the Republic, in the sub-tropical provinces, the yields are much higher than here in our temperate climate. There, surpluses of 400 pounds are not uncommon, but the honey is strong flavored and dark, while ours here is light and of delicate flavor. As I mentioned before, it is not difficult in my zone, to obtain 120 pounds of good, exportable honey, but according to Buenos Aires statistics, the average production is only about 40 pounds. This must be on account of bad management and of the many non-standard hives still in existence.

Though I have had troubles, and drawbacks with my bees, they also gave me much joy and satisfaction.

There are two things about bees which I value most: they are never boresome because there is always something new coming up, that requires all of one's attention, and they keep their owner well, both physically and economically.

* The almost universal black "native" bee.

John Guilfoyle, Australian bee supply manufacturer and Jack Deyell, discuss the Standard brood frame during Mr. Guilfoyle's recent visit to The A. I. Root Company of Medina.

Guilfoyle has manufactured bee supplies for 15 years in Queensland, Australia and says that the 10-frame Standard hive is used extensively throughout that country. Guilfoyle related that there is very little AFB in Australia and that it affords no problem.

A Talk To Beekeepers

M. J. DEYELL

WE HAVE REFERENCE to two of the important requirements in beekeeping, namely, food and comb space. It takes a long time for beekeepers to learn that a considerable amount of honey is required for winter and early spring bee food. This past winter quite a number of colonies were lost due to starvation. Some beekeepers did not leave enough honey on the hives last fall to supply food requirements during the winter and early spring.

In this area bees were kept in their hives during long periods because of rainy cool weather. Strong colonies of bees had started brood rearing prior to the cool weather, thereby using a considerable amount of honey and pollen, — in some instances reducing the stores to the vanishing point.

Ample stores are required to produce bees, and populous colonies of bees are necessary to secure the maximum crop of honey. It has been said that surplus bees are needed to produce surplus honey.

Will beekeepers ever learn?

Dr. C. L. Farrar, head of Bee Culture Section, Madison, Wisconsin, says that "honey converted into bees will bring a higher price than honey sold on the market because those bees contribute to a much larger yield".

Importance of Ample Comb Space

Many beekeepers lose swarms and surplus honey because they do not put supers on in time. I have found from years of experience that in this area it pays to put on at least one super of drawn combs at the beginning of the spring honey flow around the first of May. This super should be put on without a queen excluder underneath. The bees will then enter the super quite readily, whereas, if a queen excluder is used early in the season the bees may not go up through the excluder into the super. As a matter of fact when an excluder is not used the queen may move up into this super and lay a few eggs in the center combs. When the major honey flow does start, the queen can be smoked down into the brood

chamber and a queen excluder put on underneath the super. If there is a small amount of brood in the super put on earlier, this has a tendency to attract the bees up into the super.

For some years I have put supers on top of the pile instead of lifting off filled and partly filled supers in order to put the new or fresh super underneath or directly above the queen excluder. If the bees need the comb space they will go into the top super. Furthermore, the combs in the supers will be well filled and less handling is required during extracting time because only the filled and partly filled supers need to be uncapped and the supers that do not contain any honey can be set aside for a later honey flow.

Another advantage in top supering is that the bees are more likely to put an adequate amount of honey in the brood chamber for future stores than when supering underneath is practiced.

It is amazing the amount of honey strong colonies will store in a relatively short time during a heavy honey flow. A number of years ago we kept bees in western Ohio. White sweet clover was abundant in that area at the time. We were supering one yard on July 3 just as the flow from white sweet clover was beginning. We had a big load of supers on the truck and I told the boys to put two supers instead of one, on strong colonies. These were deep supers. In about 10 days we returned to that apiary to find that the bees had completely filled the supers we had put on. Not all of the honey was capped but practically all of the cells were filled with nectar. If we had not put on two supers the colonies would likely have made preparations for swarming.

During the days when sweet clover was plentiful in western Ohio it was not uncommon to have colonies from six to eight stories high and we had a few 10 story colonies.

Having Nuclei in Apiaries for Extra Queens

Some commercial beekeepers are now practicing this method which works out quite well. There really isn't much to it except to have some extra hives, about 10 "nucs" for each 40 or 50 hives in the yard. When checking through the bees at the time the first supers are put on, when a large colony is found that has ideas of swarming and has queen cells, (especially capped cells) we take about three frames of brood and at least one or two queen cells from the strong colony to put into a nuc hive. It is a good idea to find some combs that have young emerging bees, then shake these combs of bees into the nucs. One must be careful to leave the queen in the parent colony. In due time there should be a young queen in each nuc made up. Later on, when a colony with a failing queen is found, she may be disposed of and two combs of brood with adhering bees and the queen may be taken from one of the nucs and put in the center of the colony needing the new queen. If the queen is placed between the two combs of brood given, she is likely to be accepted, especially if there is a honey flow on. I do not recall losing any queens when using this method.

There are apt to be a few combs of brood left in the nuc from which the queen and two combs of brood are taken, consequently the bees will rear another queen.

If all of the queens in the nucs are not used during the summer, they likely can be used during the late summer or fall months to replace any queens that are failing. The bees can be united with colonies that are not quite up to par in strength.

A Simple Way to Make Increase

In this area we can count on a good fall honey flow which usually begins the last week in August and continues until about the middle of October. The major honey flow from clovers, whenever we do have it, is over about the third week in July or the first of August. At that time colonies are quite populous and there is an abundance of drones. We usually have two or three empty spaces in each yard that need to be filled up so we place an empty deep super of combs with bottom board on the vacant spot in the yard, then we lift the top super, commonly called the food chamber from one of the two story hives and place it on the empty super. So long as there is brood in both stories we pay no attention to where the queen is. If the queen is in the top super or food chamber that we place on the new stand, all well and good. If the bees

(Continued on page 441)

NEWS and EVENTS

PENN STATE HAS
Beekeeping Correspondence Course
University Park, Pa.

Beekeeping is recreation. It can also be a profitable part-time business.

Honeybees produce a very palatable food. They serve as pollenizers for fruit trees and garden crops. Without honeybees there would be lower yields of apples, pears, cucumbers, lima beans and other crops.

But Walter Haldeman of Penn State University says beekeeping requires some knowledge and skill. To help you learn about bees, Penn State has a correspondence course which deals with those industrious insects. Spring and fall management, swarm control, diseases and enemies of bees are some of the lesson titles. There are also lessons on queen rearing and honey marketing.

You can get the beekeeping course by writing to Correspondence Courses, 202 Agricultural Education Building, University Park, Pennsylvania. Include your name, address and $2.50, the registration fee. Make checks payable to The Pennsylvania State University.

MISSOURI
Midwestern Beekeepers' Association
Gladstone, Missouri
July 9, 1961

The Midwestern Beekeepers' Association will hold its regular monthly meeting at the garden and apiary of Mr. and Mrs. C. L. Barrett, 200 E. 73rd St. North, Gladstone, Missouri, Sunday, July 9, 1961. Bring a basket lunch and come early. The meeting will be held at 2:30 p.m. The subject will be "Extracting the Honey Crop". Everyone welcome. — James A. Worrel, Secretary.

MINNESOTA
Beekeepers' Association Meeting
Detroit Lakes, Minn.
July 28, 29, 1961

Minnesota Beekeepers will hold their summer meeting at Detroit Lakes, on July 28-29, with the Northwest Beekeepers' Association, local, in charge of program, and a fine job they are doing.

The revised registration law was signed into law by Governor Elmer L. Andersen on April 11, 1960 and this will be explained at the meeting. Our official magazine, The Minnesota Beekeeper, is not receiving the support from advertisers which we can expect and from a financial standpoint we must make some decision as to the future of this publication, which will come before the members at this meeting.

Glen McCoy and Walter Sundberg will give a report on our new venture, the Beekeepers' Honey Auction, which was so successful in Wisconsin last year. Meetings will be held at the pavilion. and the Gopher Grill will serve their famous noonday meal at the park at $1.50 per plate with a choice of fish or chicken.

Wm. Robson and Ernest Stoker, Secretary and President of the N. W. local promise a very fine program and I am sure this will be one meeting none should miss. As has been the custom in past years, we will have a marketing meeting at the Graystone Hotel on the evening of July 27 at 8 p.m. This is intended for packers and packer-producers mainly but all beekeepers are welcome to offer suggestions for a better honey market. — F. Q. Bunch, Secretary.

VIRGINIA
State Beekeepers' Association
Lynchburg, Va.
July 22, 1961

The Virginia State Beekeepers' Association will hold its summer picnic on July 22nd, Miller Park, Lynchburg, Virginia. We expect to have some good speakers, also some attendance prizes. All beekeepers are invited to come and bring a basket lunch. — Henry W. Weatherford, Secretary.

OHIO
State Beekeepers' Association Meeting
Bellefontaine, Ohio
July 29-30, 1961

The Ohio State Beekeepers' Association will hold its meeting, July 29-30, at the Pine Avenue School, (opposite the Fair Grounds).

Program

SATURDAY

A.M.
9:00 Registration
10:00 Welcome — Honorable Mayor, Garnet Gregg of Bellefontaine
Response — Mr. Chuck Lewis, President of the Ohio Beekeepers' Association.
10:30 "Honey Promotion" — Mr. Aldon Young
11:00 "Herbicides vs. Honeybees" — Mr. Chas. King.
11:30 Demonstration on Handling Bees — Mr. Norman Dunham

P.M.
12:00 - 1:00 Lunch — Served by the Logan Co. Beekeepers' Association at the school
1:00 Film — "Miracle of the Bees" — Mr. S. E. Bailey
1:30 The Queen Bees (Ladies' Auxiliary)
2:00 Film (Tentative) also talk on "Beekeeping on the Apalachicola River, Florida — Mr. Cutts of Chipley, Florida
3:00 A Talk for Beginners — M. J. Deyell
3:30 Charlie's "Tic-Tac-Toe" — C. A. Reese
6:30 Banquet at the Methodist Church Auditorium (Uptown). Toastmaster will be announced
Guest Speakers — Mr. Wilbur B. Wood, Director of Extension of Ohio and Mr. Robert H. Terhune, Director of the Ohio Department of Agriculture.

SUNDAY

P.M.
1:00 "Bee Research at the Ohio Experiment Station — Dr. W. E. Dunham
1:30 "Bright Spots in Beekeeping" — Mr. Emerson Long
2:00 (One of Dadants - Tentative)
3:00 A Panel Discussion — Directed by Mr. Jack Happ
Door Prizes

Producers are urged to bring samples of their honey for display at the meeting — who knows, you may sell some?

BEEKEEPING SHORT COURSE
The Pennsylvania State University
University Park, Pa.
August 21-25, 1961

The 16th annual Beekeeping Short Course of The Pennsylvania State University is scheduled for August 21 to 25, 1961, announced Professor E. J. Anderson, Beekeeping Specialist. Over 550 persons from 13 states and seven foreign countries have attended in the past, he said.

Included in the instruction will be such topics as spring management and swarm control for comb and extracted honey production, methods of wintering bees, introduction of package bees, control of diseases and enemies of the honeybee, extracting and bottling of honey, queen rearing, requeening, fall management, marketing of honey, and care of bees for pollination of fruit and other crops.

One-half of each day is devoted to lectures on the theory of beekeeping and the other half to practical application of bee management. Students will be given the opportunity to develop skills in the five University bee yards and in the laboratories. Students are required to bring their own protective equipment.

Any individual 16 years of age or older is eligible to attend. Younger individuals will be accepted if accompanied by a responsible person.

The cost of the course is $7.25 for Pennsylvanians and $12.25 for non-Pennsylvanians. More information and application blanks can be secured from the Director of Short Courses, Room 211 Armsby Building, The College of Agriculture, The Pennsylvania State University, University Park, Pa.

ILLINOIS
State Beekeepers' Summer Meeting
Lemont, Illinois
July 23, 1961

Illinois State Beekeepers' Summer Meeting sponsored by Cook-Du Page Association, Sunday 23, July 1961, called to order 10:00 a.m. at St. Mary's Seminary. St. Mary's is located about two miles N. E. of Lemont on 4 A and a mile S.W. of intersection 83 and 4 A on the old Joliet Road.

President Arthur E. Corey and the Directors of the Cook-Du Page Association have done their best to plan for you beekeepers a good meeting and we therefore ask you old drones, young and old queens and workers to swarm to above meeting place for this gala event, so do your part and make it the best yet in attendance.

All beekeepers and anyone interested who might be passing through this area on vacations are cordially invited to meet in this beautiful air conditioned building and listen to a good program, shake hands with old friends and discuss your problems.

The following speakers have been selected and we think you will approve our choice: Rev. Fr. Pius J. Petric, Apiarist, St. Mary's Seminary, Lemont, Illinois; Dr. Mykola H. Haydak, Associate Professor, Dept. Entomology and Economic Zoology, University of Minnesota. Ralph Bradley, Director of Agriculture, State of Illinois; Alan Root, General Manager, The A. I. Root Co., Medina, Ohio; Charles Dadant & Sons, Hamilton, Illinois; Arthur W. Kehl, Dadant & Sons, Watertown, Wisconsin; Carl E. Killion, Chief Apiary Inspection, State of Illinois, Paris, Illinois; L. M. Leiper, President, Illinois State Beekeepers' Assn., Belleville, Ill.; Hoyt Taylor, Secretary, Illinois State Beekeepers' Assn., Pleasant Plains, Ill.; and Rev. Fr. Augustine Jones, OSB, Marmion Military Academy, Aurora, Ill.

Mrs. Ralph Klebes, our hostess, says the association will serve ham and coffee, members the pot luck, and don't forget your table service. — Ralph O. Klebes, Publicity.

PENNSYLVANIA

Northwestern Penn. Beekeepers' Assn.
Titusville, Pennsylvania
July 29, 1961

The Northwestern Beekeepers' Association of Pennsylvania will meet at Burgess Park, Titusville, July 29, for a picnic and program. A cordial invitation to all.

KANSAS

Northeastern Kansas Beekeepers' Assn.
Kansas City, Kansas
August 6, 1961

The Northeastern Kansas Beekeepers' Association will meet August 6th at 2:30 p.m. for the regular monthly meeting at the home of Mr. and Mrs. Roy F. Furgeson, 4126 Francis St., Kansas City, Kansas.

Professor Herbert Knoston, Manhattan, Kansas, will be our guest speaker. All who are interested in bees are invited to attend. Refreshments will be served.—Mrs. Bert M. Parrish, Sec.

MINNESOTA

Southeastern Minn. Beekeepers' Assn.
July 16, 1961

The Southeastern Minnesota Beekeepers' Association will hold a summer tour on July 16. The tour will start at 10:00 a.m. Sunday morning at the William Ahrens residence in Kellogg, Minnesota. We will leave the Ahrens' residence at 11:00 a.m. and travel to Colvill Park at Red Wing, Minnesota and have the noon picnic lunch there. Ice cream will be furnished. Bring your own dishes and pot luck.

From Colvill we will travel to the F. Q. Bunch residence at Welch, Minnesota, and plan to be at Mr. Bunch's residence at 2:30 p.m.. We will make the final stop at the Robert Banker residence at 3:30 p.m. This is a complete schedule of the tour so if you cannot take part in it all, perhaps you can pick it up along the way. — Lyle Dankers, Sec.-Treas.

MASSACHUSETTS

Middlesex County Beekeepers' Assn.
Harvard, Massachusetts
July 29, 1961

Outdoor summer meetings continue at the Harvard home of Mr. and Mrs. William Maxant, Ayer Road. All beekeepers visiting the New England area are cordially invited to attend our meetings. The Maxant home may be easily found from either Route 2 or the Littleton traffic circle. It is on Route 110.

Our meetings start at 2:00 p.m. with an inspection of the hives, followed by a short business meeting. Everyone brings their picnic supper. Coffee and ice cream are furnished by the association. You may have a contribution to make in our varied discussions about disease control, sprays and insecticides, producing comb honey, or packaging honey. — B. Carlson, Sec.

NORTH CAROLINA

State Beekeepers' Association
Cullowhee, N. C.
August 4, and 5, 1961

The North Carolina Beekeepers' Association will hold its annual summer meeting at the Western Carolina Teachers College on August 4th and 5th. Located in Cullowhee, North Carolina.

We will be looking for you there

(Continued on page 441)

Obituaries

DUANE C. BABCOCK

DUANE C. BABCOCK, for many years an employee of The A. I. Root Co. died suddenly of a heart attack on May 28, in Medina Community Hospital at the age of 73.

Mr. Babcock joined the Root organization in 1922 after having been engaged in Plant Pathology work in Ohio and Pennsylvania. After serving The Root Co. as promotion and advertising manager for a number of years he was made manager of a subsidiary office of The A. I. Root Co., San Antonio, Texas, where he served for 10 years until his retirement in 1956.

He moved back to Medina and settled on a farm near Medina where he and his wife enjoyed rural life.

"Bab" as he was called by those who knew him best, had a wide circle of friends. He was interested in church work, helping to promote the best interests of the community in which he lived. He will be greatly missed especially by beekeepers over the country. He leaves a wife, Eva, and a son Duane, living in San Antonio, Texas.

HELEN DADANT

WE REGRET to announce the death of HELEN DADANT, wife of M. G. Dadant and mother of Charles C. Dadant and the late Robert H. Dadant. Although she had been in failing health, she had enjoyed a full Sunday — attending Mass, taking a car ride and playing cards with friends in the evening — and passed away suddenly early on Monday, May 29, 1961 at the age of 71.

Many in the industry will remember her smiling face and laughter as she accompanied M. G. on many business trips and attended numerous beekeepers' meetings. Her many friends will remember her as a truly fine woman who, as an inspiration to her husband and family, played a real part in the development of the Dadant organization and its contributions to the beekeeping industry. Our sincere sympathy to the Dadant family.

LUTHER S. HUTCHINS

LUTHER S. HUTCHINS, a prominent beekeeper of Massena, N. Y., passed on recently at the age of 95. The Hutchins family have been in the beekeeping business for over 75 years.

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WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. HUBBARD APIARIES, ONSTED, MICHIGAN.

IOWA HONEY, one can or truck loads. RUSSELL D. SMALLEY, BEAVER, IOWA.

CLOVER extracted honey in sixties. ABRAM BRUBAKER, 1525 September Dr., LANCASTER, PA.

TUPELO, wild flower, alfalfa, or orange, in 60's. LANCASTER COUNTY DUTCH GOLD APIARIES, 910 State St., LANCASTER, PA.

HONEY—In any size container, also Mail Order Dealer for Bee Supplies. Write for prices. L. E. ALLEN, TIPTON, MICH.

FOR SALE—White clover and light amber goldenrod honey, in 60-lb. cans, truck or carload. CLOVERDALE HONEY CO., FREDONIA, NEW YORK.

MICHIGAN'S finest raspberry, basswood, clover comb honey in 4 x 5 window cartoned sections. Deluxe extra fancy, $9.00 case; Extra fancy, $8.50; Fancy, $7.50; No. 1, $6.50; No. 2, $5.50. E. Z. QUICK WAY B FARMS, BOYNE FALLS, MICHIGAN.

NEAR WATER WHITE Orange honey. New crop - Florida. HUBBARD APIARIES, ONSTED, MICHIGAN.

WHITE CLOVER honey in sixties. SELMAR W. MARKESTAD, CANTON, MINNESOTA.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE — We cannot guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on C.O.D. terms except where the buyer has thoroughly established his credit with the seller.

WANTED—All grades of extracted honey. Send sample and price. DEER CREEK HONEY FARMS, LONDON, OHIO.

CASH FOR BEESWAX. Write as to quantity and we will quote price. MUENCH-KREUZER CANDLE CO., INC., SYRACUSE, N. Y.

WANTED—White extracted or comb honey. Send sample. MILLERSPORT HONEY CO., MILLERSPORT, OHIO.

BEESWAX WANTED—Highest prices paid in cash or trade for bee supplies. THE A. I. ROOT CO., MEDINA, OHIO; COUNCIL BLUFFS, IOWA; SAN ANTONIO, TEXAS.

WRITE FOR SHIPPING TAGS and quotations on rendered beeswax. We buy from one pound up and if you have over 25 pounds let us work it into foundation for you at a 25 per cent saving. WALTER T. KELLEY CO., CLARKSON, KY.

WANTED—Buckwheat and light amber honey. EASTERN FOOD PRODUCTS, 421 Bedford Ave., BROOKLYN, N. Y.

WANTED—Honey and Beeswax. WALLY'S BEE ENTERPRISE, 4900 Morningside, SIOUX CITY, IOWA.

HONEY WANTED for bottling, all types in drums, tins, trailer and car lots. Send samples each lot. Write: CHAS. E. FARRIS CO., 99 Hudson St., NEW YORK CITY. Est. since 1910.

WANTED—Honey in 60 pound cans, also beeswax any quantity. L. E. ALLEN, TIPTON, MICHIGAN.

ALL GRADES extracted honey wanted in both 60 pound cans and 600 pound drums. PRAIRIE VIEW HONEY CO., 12303 12th St., DETROIT 6, MICHIGAN.

WANTED, chunk comb and extracted honey. Mail sample and price. STOLLER HONEY FARMS, LATTY, OHIO.

WE RENDER cappings, old combs and buy your beeswax. Shipping tags sent on request. M. R. CARY CORP., GPO Box 818, SYRACUSE 1, NEW YORK.

WANTED — Chunk and extracted honey. Send sample and price. RONALD CULP, CIRCLEVILLE, OHIO.

BEE SUPPLIES FOR SALE

WRITE FOR CATALOG—Quality Bee Supplies at factory prices. Prompt shipment. Satisfaction guaranteed. HUBBARD APIARIES, Manufacturers of Beekeepers' Supplies and Comb Foundation, ONSTED, MICHIGAN.

THE BIGGEST Bee Supply Catalog published (64 pages) free for the asking. Listing many items not found in other catalogs. No agents—buy direct and save 20%. WALTER T. KELLEY CO., CLARKSON, KENTUCKY.

QUEENBEE PAINTING OUTFITS, $1.50. INTERLOOKERS, $3.00 postpaid. SOUTHWICK APIARIES, WABAN, MASS.

FREE CATALOG—Cypress bee hives and bee supplies. Save up to 40% on hives that last. MYERS CRAFT MANUFACTURING CO., BURGAW, NORTH CAROLINA.

No. 1 Hive Bodies, $2.00; No. 2 Hive Bodies, $1.75; Covers and Bottom boards, $1.10; Shallow Extracting Supers, $1.25; Hoffman Full Depth Frames (per hundred), $11.00. Catalog on request. HAGEN-LUNCEFORD MFG. & SUPPLY CO., 2500 N. 4th Street, COEUR D'ALENE, IDAHO.

BEFORE YOU SELL your honey or buy your honey containers see HUBBARD APIARIES, ONSTED, MICHIGAN.

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BEE SUPPLIES—All types. Write for prices, or contact H. L. MUNDELL, 639 28th Street, North, LEWISTON, IDAHO.

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ASK FOR July and August Factory Warehouse Discount Sheet "OVERSTOCKED". HUBBARD APIARIES, ONSTED, MICHIGAN.

SALE OF NEW dove-tail equipment. Our "Bee Modern" aluminum roof telesope cover, Regular price, $2.20; Sale, $1.65; 6⅝ supers, Regular price, $1.40; Sale, 95¢. All equipment low prices, clear pine, not seconds. C. L. McCLAIN, R. 3, PINCONNING, MICH.

USED EQUIPMENT FOR SALE

FOR SALE: 1400 colonies of bee equipment. All standard, 10-frame, full depth. About four to five stories high. Write for complete details. Box 69, GLEANINGS, MEDINA, OHIO.

14 KILLION comb honey supers, 4 frame Woodman, power driven extractor, two Root uncapping baskets. All in good condition. H. H. RICKLY, R. R. 2, BLUFFTON, OHIO.

350 HIVES BEES, plenty supers, nearly all 10 frame size, standard depth, good locations on yearly rental, near Santa Paula, California. Or will trade up or down for hives in Saskatchewan. Box 601, RESEDA, CALIFORNIA.

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1 - 1000 pound Clark Lift Truck
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Ask for list of used Honey Tanks and other Extractors. HUBBARD APIARIES, ONSTED, MICHIGAN.

FOR SALE — 310 hives of bees, three or four deep or shallow supers, in good condition. Located in Fostoria and Kent, Ohio. WILLIAM BUBNOW, 6569, North Reeves Avenue, KENT, OHIO. Telephone ORchard 3-9405.

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DAY-GLOW Honey Signs, 55¢. Once-used honey cans, 30 to 35¢. FRED RUSSELL, CHELMSFORD, MASS.

FOR SALE — Three bedroom home, bees, locations, complete honey packing business on State highway near Orlando, Florida. Write PHIL PACKARD, OVIEDO, FLORIDA.

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CARNIOLAN and CAUCASIAN BEES for 1961. Booking queens, each $1.25, clipped and marked. 2 pound package with queen, $4.00. 3 pound package with queen, $5.00. LEWIS & TILLERY BEE CO., R. 3, Box 261, Phone DU 2-8371, GREENVILLE, ALABAMA.

CAUCASIAN QUEENS, $1.25 ea. Extra good producers and gentle to handle. C. D. WARDELL & CO., Box 6226, PALESTINE, TEXAS.

ITALIAN and CARNIOLAN QUEENS, $1.00 each. LUTHER PICKETT, EFLAND, N. C.

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FOR SALE—100 colonies of bees wintered in two story 10-frame hives. No A.F.B. B. B. COGGSHALL, GROTON, N. Y.

1,000 COLONIES, 10-frame, 3 or 4 stories, 2,000 8-frame, 2 or 3 stories. Also for LEASE, 3,000 colonies, either 8 or 10 frame. Bees and equipment, excellent condition. JIM'S VALLEY APIARIES, P.O. Box 544, SUNNYSIDE, WASHINGTON.

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BEES REMOVED from house or tree or hive without touching either house or bees. Bees will then move honey into hive. Save property, honey, and bees with my method. Send $2.00 for details. Satisfaction guaranteed. GEORGE HAWKINS, Rt. 1, LAWSON, MO.

RENDERING every day in our all new plant. All honey saved from cappings. Rendering slumgum and old combs. Write for free shipping tags and rates. HUBBARD APIARIES, ONSTED, MICHIGAN.

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LARGE BEE SUPPLY Manufacturer and Honey Processor wants Supply Dealers and Honey Buyers. Write for Catalog and Honey Prices. HUBBARD APIARIES, ONSTED, MICH.

WANTED – 20 or 30 frame extractor in good condition – send price and detai'ls in first letter to CAROLINE HONEY FARM, GOLDSBORO, MD.

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SUPER STRENGTH 100 mg. Royal Jelly capsules in bottles of 100 for $10.00. FRAIRIE VIEW HONEY CO., 12303 Twelfth St., DETROIT 6, MICHIGAN.

MAGAZINES

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INDIAN BEE JOURNAL, know interesting facts concerning the honeybees of India. The only Bee Journal of India published in English. Subscription Rs. 12/- or Sh. 17/6d (Sterling) or $2.75 per year (INTERNATIONAL M.O.). Sample copy 2s. or 25 cents. Can be had from The Managing Editor, Indian Bee Journal, Naini Tal, U.P., India.

PROFIT AND HEALTH—Raise dairy goats. Learn how. Monthly magazine, $2 yearly; sample and information 25¢. DAIRY GOAT JOURNAL, COLUMBIA T3, MISSOURI.

DO YOU FIND it difficult to secure information about sheep and sheep ranching methods? The SHEEP AND GOAT RAISER reaches more sheepmen with more information on range sheep than any other magazine published. Subscription, $3.00. Box 189, SAN ANGELO, TEXAS.

BEE WORLD, the international journal of the Bee Research Association published monthly, contains the latest research reports on bees and beekeeping, and also Apicultural Abstracts. Bee World is $9.00 a year to non-members. but the B.R.A. membership subscription of $7.00 includes Bee World. B.R.A. members in America are served by the B.R.A. American Committee, and have their own Branch Library at O.A.C. Details free (or with specimen Bee World and new B.R.A. Handbook, 50 cents) from Apiculture Department, Ontario Agricultural College, Guelph, Ontario, Canada.

ARCHIV FUR BIENENKUNDE, International journal for Bee Culture and beekeeping economics. Founded in the fall of 1918. Oldest scientific bee journal in the world. Praised again and again for its decades of independent leadership through many endorsements and advice as a valuable source also for the practice. Yearly DM 5.50. Any aspiring beekeeping friend will receive a sample copy. BIENE-VERLAG, GIEBELBACHSTR, 19, LINDAU (B) GERMANY.

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Untested Queens	$ 75	$ .65
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2-lb. pkgs. w/q	3.00	2.75
3-lb. pkgs. w/q	4.00	3.75
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Italians Caucasians
Nice large queens .... 75¢ each
To air mail queens add 5¢ each extra. To clip and paint queens add 10¢ each queen.
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NORTHERN TESTED STOCK
A Dependable Source of
Good Early Queens

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75¢ each, any number
We ship only the best.

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Route 1, Box 1070 Naples, Fla.

THE IMPORTANCE OF BOOKKEEPING IN BEEKEEPING

(Continued from page 427)

Column number 18 relating to Depreciation is exceedingly important in its relation to income tax considerations. Regardless of the depreciation period you have elected on your income tax return, it is necessary that you know when you have depreciated out each item of your capital investment. Thus it becomes more than necessary in column 16 to keep an accurate yearly record of the cost of all capital equipment because proper depreciation amounts can save you much on your income tax return.

We have not tried to present a complicated system of bookkeeping. but to present one that will be satisfying to the beekeeper who is willing to make the effort of keeping good books and who desires to know his financial position at a given time. It is necessary for each beekeeper to have some kind of an accounting system or beekeeping from a profit standpoint becomes a very uncertain thing. We are sure that each beekeeper will have modifications or improvements to make on the preceding suggestions made. We are certain that for the 17 years that we have kept such a set of books the effort has not been too great and we have had the satisfaction of knowing that we have succeeded financially in beekeeping.

It has been said that if you take good care of the bees they will take good care of you. This is more than literally true because we have found it so financially.

Testing and education have been very satisfying professions, but to go back to the classroom on September 1 with a new outlook we would recommend beekeeping to teachers who wish challenging summers.

A TALK TO BEEKEEPERS

(Continued from page 432)

on the old stand have eggs they will rear a new queen. Most of the old bees may go back to the old location.

As a rule both divisions build up in good shape for winter and in some instances one of the divisions will store some surplus honey. This is the simplest way I know of to make increase. Obviously we select good producing colonies for making increase.

NEWS AND EVENTS

(Continued from page 435)

whether you belong to the association or not, to help us try to know more about keeping bees and at the same time enjoy those cool mountain breezes for a short two day vacation.

There will be plenty of room in dormitories that are practically empty of students at this time of year and we eat at the College cafeteria, all at very reasonable rates, so come and bring the family.—S. C. Squires, Sec.-Treas.

NEW HAMPSHIRE
Beekeepers' Association
Durham, N. H.
July 8, 1961

The next meeting of the New Hampshire Beekeepers' Association will be July 8 in Room 4 at Putnam Hall on the campus of New Hampshire University, Durham, N. H.

Guest speaker will be Dr. Frank R. Shaw, co-editor of the recent book "Beekeeping" and Professor of Amherst College, Mass.

Dues of $2.00 per family unit, payable at all meetings or by mail, and gratefully accepted. Everyone is welcome to attend.—Barbara Prior, Secretary-Treasurer.

IOWA
Beekeepers' Association
Perry, Iowa
July 8, 1961

The Iowa Beekeepers' Association will hold its annual summer meeting on July 8th, in Perry, Iowa with Mr. John Jessup as host. This will be a pot-luck luncheon so bring a covered dish and your own table service. Drinks will be furnished.

An interesting program is being planned and will be announced more in detail in the July issue of the Iowa Beekeepers' Association newsletter. Everyone is urged to attend.—Thomas Doonan, President.

WHAT ABOUT PHENOL?

(Continued from page 397)

If this is a possible cause of contamination, how can it be avoided? One possible method is to liquefy the phenol with glycerin. Since phenol and glycerin are both alcohols, they are compatible and make a good solution. Unlike water, glycerin does not evaporate readily but will keep the phenol on the cloth in solution practically indefinitely, and prevent it from forming crystals. This theory of mine has not been tested out as yet and should be tried on a practical scale to see if it can avoid all contamination.

Another possible method is to divide the cover in two halves, or to have two covers. The first cover on the super has simply a clean cloth over it and on top of this is placed the regular phenol cover. The clean cloth cover below the phenol cover would prevent any phenol from falling on the super. There may be other methods that should be tried.

Recently in Gleanings a "new" smoke box method of taking off honey was described as being better than the phenol cover. This smoke box idea, of course, is a very old idea. The disadvantage I have found with its use is that it will contaminate the honey and give it a smoky taste. It is also possible that too much smoke can cause phenol contamination as it is found in smoke.

It is not difficult to find materials that will drive bees out of the supers by their odor, there are, no doubt, hundreds and perhaps thousands that will do this. The big problem is to find one that will cause no taste of contamination in the honey. To test hundreds or thousands of kinds of materials and then to test any possible contamination of each of these materials on a parts per a million basis, is a job far beyond that of any beekeeper. We hope the Beekeeping Laboratories of the Department of Agriculture will tackle this problem and find a solution in the near future.

In the meantime, every beekeeper that uses the phenol cover, should be aware that this problem exists and do everything in his power to keep honey the pure, natural product that it is.

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Why not join our list of satisfied customers NOW?

Reg. U. S. Pat. Off.

Dadant Starline			Jensen's Magnolia State Italians		
1-24	25-99	100 up	1-24	25-99	100 up
$1.30	$1.15	$1.00	$1.00	$ .90	$ .80

Air Mail postage paid on queens. Clipped & marked FREE.

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"CAUCASIANS"

Breeders furnished by J. E. Hastings. Bred for honey production, hardiness and gentleness.

1-24 ..... $1.10 each
24-99 ..... 1.00 each
99 & Up ..... .90 each
Italian queens, 75¢ each
or $65.00 per hundred.
All queens shipped Air Mail.

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Dark
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1 to 19 .. $1.00 20 to 99 .. 90¢
100 up ..... 85¢

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PACKAGE BEES AND QUEENS

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Shoot for profit - - - - Shoot for the STAR
Order STARLINE queens this season and profit.

STARLINE:	1-24,	$1.20	25-99,	$1.15	100-up, $1.05
ITALIAN:	1-24,	.90	25-99,	.85	100-up, .75

Clipping 5¢ each, marking 5¢ each.

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When you think of
QUEENS

Think of:
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Our 100% satisfaction has been good for 49 years, let us prove it.
Untested queens . . . .75¢ each 50 up . . . .65¢
Tested queens, ... $1.50 any number

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Prompt Shipment
Prices in U.S.A & Canada
Via Air Mail
Clipped & Marked if Desired
1-25 . . . . . $ .85 Each
26 up . . . . . .75 Each
SELECT TESTED, 3.00 Each
Recommended for comb honey production. 30 days is required for shipment of this stock in most cases.
APPROVED BREEDING STOCK, $5.00 Each
O. K. Anderson & Son
P. O. Box 66
Coffee Springs, Alabama, U.S.A.

As in the past we will be shipping **PACKAGE BEES** as of April 1st. Are you listed for shipment? Many dates are filled to capacity now (March 6th). Give us a try if you still need bees. We are sorry if we could not accept your queen order. Packages require so many queens that we have to limit shipment of individual queens until after May 10th. Give us your order for queens to be shipped after that time. If at all possible we will supply you. Refer to last issue of journals for package prices. Queen prices as follows:

	Regular Italian	
	to May 20th	after 5/20
1-24	$1.45 ea.	$1.20 ea.
25-99	1.35	1.10
100 up	1.25	1.00
	Island Hybrid	
	to May 20th	after 5/20
1-24	$1.75 ea.	$1.50 ea.
25-99	1.65	1.40
100 up	1.55	1.30

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THREE BAND ITALIAN "QUEENS"
Never before have good queens been so important.
Serving those who demand the best.

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1-9	10-49	50 up
$1.00	90¢	80¢

Caged fresh from our yards and rushed to you prepaid Air Mail.
Clip and mark, 10c extra.
Quality Does Not Cost — It Pays
THE WILBANKS APIARIES CLAXTON, GEORGIA

WHEN OL' SOL BEAMS

(Continued from page 421)

cream; let stand until most of moisture is taken up. Add eggs and beat well. Sift together flour, soda, salt, and sugar. Add to bran honey mixture, stirring only until combined. Fill greased muffin pans two-thirds full. Bake in moderately hot oven, 400°F., about 25 minutes. Yield: 12 muffins.

Cheese Salad Bowl

One-fourth cup butter, 1 cup toast cubes, ½ cup cottage cheese, 3 ounces Blue cheese, ⅓ cup lemon juice, 1 teaspoon honey, 2 teaspoons prepared mustard, ½ teaspoon salt, 1 teaspoon oregano, dash of garlic salt, 3 quarts chilled salad greens, and 8 ounces sliced Swiss cheese, cut into narrow strips.

Melt butter in skillet; add toast cubes and toss until well coated. Drain cubes on paper toweling. Mix together cottage cheese and Blue cheese, lemon juice, honey and seasonings. Just before serving turn chilled salad greens into large mixing bowl. Sprinkle toast cubes over top. Pour cottage cheese dressing over greens and toss lightly with forks until mixed. Garnish with cheese strips. Serves 8.

RESEARCH REVIEW

(Continued from page 413)

and injured and also that the under side of the forceps not touch the bottom of the egg at its point of attachment.

The fact that honeybee eggs can be transferred without injury is largely of experimental interest. It will be valuable in laboratory work, especially where persons are interested in bringing new stock into this country. Under special regulations it is possible to import eggs or larvae of various bees from abroad. Authorities are reasonably sure that eggs or larvae will not carry bee diseases which are not now present in this country. The method might also be of interest to commercial queen breeders who are interested in transferring three day old eggs instead of young larvae for commercial queen production.

Taber, Stephen, III
Forceps designed for transferring honeybee eggs. Journal of Economic Entomology 54:247-9. 1961.

HYBRID QUEENS

are necessary to show the extra pounds of honey for beekeeping profit. **MIDNITE HYBRIDS** give you the extra good wintering colonies plus the ability to store honey in beautiful white capped combs. If wintering is your problem plan now to incorporate **MIDNITE HYBRIDS** in your own testing program.

STARLINE HYBRIDS, the o'dest commercially successful hybrid available brings you the vigor of a hybrid strain in the Italian race. COMPLETELY NEW this season, this STARLINE has been tested for five seasons bringing you the finest strain of bees available. If you have not used the **NEW STARLINE,** requeen out all of your poorer queens and try them for your next honey crop.

ALL HYBRID queens are reared under constant, stimulant feeding to insure large, well-developed queens to head populous colonies. Plan on using these queens in all your normal work. RETURN MAIL shipments throughout summer and early fall.

Quantity	1 to 25	26-99	100 up
STARLINE or MIDNITE	$1.30	$1.20	$1.00
Italian	1.00	.90	.80

Clipped and marked by experienced handlers for only 15¢ each additional.

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The strains preferred by leading Honey Producers.

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Write us for further descriptive folders on the Midnite and Starline hybrids.

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25-99	1.25
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If so, give ours a trial.
From now to October.
1-9 ..... 80¢
10-49 ..... 75¢
50 or more, each ..70¢
N. B. SMITH & CO.
Calhoun, Alabama

ITALIAN. . . . "GULF BREEZE" . . . . QUEENS

The old reliable company offers you good queens for any use and in any quantity.

Prices: 1-9. . 95¢ each 10-49. . 90¢ each 50 up. . 80¢ each
Mark 5¢ and clip 5¢ each extra.

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Queens IMPROVED 3-BANDED ITALIANS **75¢** Via Return Air Mail 25 up, 65¢

Requeen with young vigorous dependable queens. Safe arrival, health certificate satisfaction in U.S.A. and Canada.

2-lb. pkg. with queen $3.00
3-lb. pkg. with queen 4.00
4-lb. pkg. with queen 5.00
Tested queen 1.50
All queens postpaid, pkg. F.O.B.

NORMAN BROS. APIARIES RAMER, ALA.

BETTER BRED QUEENS 3-BANDED ITALIANS
A. L. Webb, Sr. A. L. Webb, Jr. A. L. Webb, III.

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QUEENS — 70¢ each the remainder of the season.

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CAUCASIAN or ITALIAN
Quality ranks tops in Honey Production

	1-25	26-99	100 up
2 lb. pkg. with Q.	$3.50	$3.25	$3.00
3 lb. pkg. with Q.	4.50	4.00	3.75
4 lb. pkg. with Q.	5.50	5.00	4.75
5 lb. pkg. with Q.	6.50	6.00	5.75
Queens	1.00	.80	.75

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Choice of many: for Honey, Gentleness, Wintering

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100 & up 85

For Dadant Midnite Hybrid Queens, add 25¢ to the above prices. Queens clipped and marked at 10¢ each. State health certificate with each shipment. Live arrival guaranteed.

HOWARD WEAVER & SONS - - - - - NAVASOTA, TEXAS

THE LAND OF HONEY

(Continued from page 396)

three days good weather can make a big difference in a honey crop. During July, colony gains of 20 pounds per day are common and may be 30 or more.

The larger beekeepers in the Province operate approximately 1200 colonies each. The commercial apiaries range in size from 400 to 1200 colonies depending on area and desire of the individual. One person can usually manage about 400 colonies satisfactorily in this country. Cost of operations is about $10.00 per colony. Beekeepers have been receiving a return for their honey of approximately 13 cents a pound in recent years.

EXTERNAL MITES ON HONEYBEES IN U. S.

(Continued from page 403)

tion and the ability of a colony to carry on its normal activities.

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LOADING THE EXTRACTOR

(Continued from page 407)

who have not yet found a solution to deal with this problem.

Supers come off the hives in a variety of weights, and normally hold nine of the standard frames, as in my case. Therefore, I am only using 27 frames in the 30-frame extractor, and I do not attempt to select three supers of equal weight for each load, but take them at random. If all the slots in my extractor basket had imaginary numbers, the first three frames of super No. 1 are placed in slots No. 1, 2 and 3, the next three in slots 11, 12 and 13, the last three go in slots No. 21, 22 and 23. Then, the frames of super No. 2 follow in slots 4, 5 and 6, and I continue in the same manner until all the 27 frames have been replaced, and I find that this system of loading a batch almost guarantees a smooth run.

If, for any reason, it is desired to place the same 9 frames back into the same super, it is not difficult to arrange the unloading in reversed order.

Caution is required when second or upper brood chambers are extracted, in which case special attention must be paid to the pollen frames and with some practice these can be distributed in a similar manner to balance the load.

HOMAN'S

QUALITY BRED
CAUCASIANS

1-24 ..... **85¢**
25 & up ..... **75¢**

All Queens Postpaid Air Mail.
Health Certificate
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Will this year offer the famous "LITTLE" strain of Italian queens.
Have been wholesaling to Little Apiaries for the past several years.
QUEENS 1 to 24 .....**$1.20**
25 to 50 ..... **1.10**
Discount on large orders. Queens marked and clipped FREE when requested.

NORMAN'S ITALIAN QUEENS
75¢ Air Mail
Improved 3-BAND ITALIAN Bees and Queens from top honey producing hives. Prompt service, full weight, safe arrival guaranteed with health certificate furnished.

	1-25	26-up
Untested queens	**$ .75**	**$ .65**
Tested queens	**1.50**	**1.30**
2-lb. pkg. w/q ...	**3.00**	**2.90**
3-lb. pkg. w/q ...	**4.00**	**3.90**
4-lb. pkg. w/q ...	**5.00**	**4.90**

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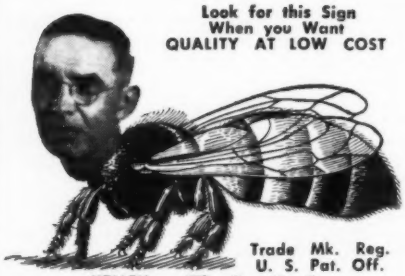

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